

THE COMPARATIVE STUDY OF INSTINCTS¹

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I. *Phylo- and ontogenetic problems* (pp. 1-3). II. *Mutations and Lamarckism* (pp. 3-4). III. *The relations of instincts* (pp. 4-5). IV. *Instincts at different zoological levels* (p. 5). V. *Inherited determining tendencies* (p. 6). VI. *The role of intelligence* (p. 7). VII. *Other criteria of instincts* (p. 7). VIII. *Taxonomic values* (pp. 7-8). *References* (p. 9).

Before an audience like this, there is no need to stress the importance of the comparative study of any subject that is of common interest to biology and medicine. Yet, in its comparative aspect, research into the problems of instinct has been, until recent years, largely neglected. Not that its value has been of late unrecognized. For instance, at the close of his important contribution to the study of the black-headed gull, F. B. Kirkman (1937, p. 206) raises questions the answers to which, as he well realizes, demand "not the method of concentration on one species adopted in this book, but a comparative study of many species directed to the solution of...one problem". And, as also Konrad Lorenz² (1939) observed, "Comparative research in behaviour presents a marvellous field for an exact and, in the true sense of the word, organically drawn analysis; a field in which descriptive-comparative and the hardly touched experimental methods must just now begin to show the still prevalent speculations their limits".

I. PHYLO- AND ONTOGENETIC PROBLEMS

The comparative study of any biological characteristic is not only of importance for its understanding in any one organism, but is also of importance for the understanding of the evolution of that characteristic—especially in the case of instincts, where we cannot, as we can in the case of bodily characteristics, fall back on the study of fossil records in order to help in tracing their evolution. Thus instincts present not only an ontogenetic but also a phylogenetic problem (cf. Maier & Schneirla, 1935, pp. 121-2). Every instinct must have had a past phylogenetic history and must generally, however slowly, be undergoing a present change. In one sense, at least, there is profound truth in James Ward's dictum (1918, p. 449) that "what is instinct now cannot have been instinct always".

For a full understanding of the problem, we need to study the variability and the variations of instincts among the individuals of any one species and to compare similar instincts in allied and in more remote species. Take, for example, the cricket-paralysing instinct of the solitary Indian wasp (*Sphex lobatus*) by which food is obtained for her subsequently developing eggs. One individual of this species is described by R. W. G. Hingston (1928, p. 98) as hurried and impatient in her acts, another as slower and more precise. They make preliminary superficial stings, apparently to weaken the victim before making the final stab (p. 57), but these are very variable in number—from two to even

¹ A paper read at a joint meeting of the Section of Comparative Medicine of the Royal Society of Medicine and of the Institute for the Study of Animal Behaviour, on 21 June 1944.

² I am greatly indebted to the courtesy of Dr W. H. Thorpe for access to an American translation of this monograph made by D. S. Lehrman from the German original which is difficult now to obtain. The quotations are from this translation.

five. To malaxate her prey, the wasp bites into its neck, sometimes once, sometimes more often. The truth is, Hingston concludes (p. 117), that "no two individuals perform an act in exactly the same way...; the details permit of endless variation, though usually in small degrees". Whereas (pp. 276-9) the Indian *Sphex* chooses a cricket vastly bigger than herself and so heavy that she can only drag it along the ground, the French *Sphex* (*S. flavipennis*), whose prey is much smaller, is able to fly with it. Whereas the latter makes three stabs—in the neck of the cricket, in the thorax and in the front of the abdomen—the Indian *Sphex* makes only one stab—into the neck of its far larger victim. These and other interesting differences, as Hingston observes (p. 279), indicate the "lines on which instincts have diverged since the creature left the ancestral stock". The variability of nests, not only of birds but even of ants, according to environment has also been noted. As Hingston has observed (pp. 110-11), some ants nest in the soil, many of them digging a tunnel; but if the earth is unsuitable, they will build a nest in a tree, perhaps boring into the trunk. The material, shape, etc., of the nest will vary according to circumstances. Again (p. 114), many species of ants spin silken cocoons which practically enclose them throughout the pupal stage, whereas other species spin no cocoons, the pupa remaining naked; in one species some pupae have cocoons, others not. How have these variants arisen?

Hingston (pp. 9 ff., 105-6) also studied *Pheidole indica*, "a small ant common on the Indian plains. The colony... sends out armies in search of insects which they carry dead or alive to the nest." There are messenger ants that "call out comrades to help in a capture [and] will keep on bringing them until the prey is overwhelmed; then they will bring no more". These armies get the smell of the messengers who have returned to the colony after having 'spotted' the prey. They smell their way along the track previously taken by the messengers. The latter *do not lead* the armies, but accompany them in their midst. Hingston endeavours to trace the evolution of this instinct by citing (pp. 270-2) less complex ones found in other species of ants. In *Campanotus sericeus*, an Indian ant which ascends trees for food, one ant "*leads* another to the place where spoil has been found... The leader keeps in front: the led ant follows... If number two happens to get out of touch, then the leader halts and waits until number two regains its place," the latter repeatedly touching the former's tail. In another species, *C. paria*, the led ant often falls "2-3 inches in the rear, yet does not lose its way"; and the leader does not halt for the led ant to catch up. Hingston convinced himself by experiment that this ant employs the sense of smell, not that of touch. In a third species, *C. compressus*, the finder of the spoil summons not one companion but a small army of ants "which collects in a group behind it... All keep in one another's track, which they recognize by means of scent." Here the finder *leads*. Moreover, if one of these ants meets with a comrade as it is returning to the nest with the news of the prey that it has discovered, the comrade will manage to find the spoil by retracing the finder's tracks if the distance be not too great. Thus, Hingston suggests, "we come to the finished instinct as shown in *Pheidole indica*".

Several similar speculations might be quoted from existing literature. O. H. Latter (1913, p. 24), for instance, observes that while the Sphegid *Ammophila sabulosa* "supplies her young with two large caterpillars and thereafter takes no further interest in its welfare", *A. campestris* captures much smaller caterpillars and "for several days returns bringing a few fresh caterpillars for her growing young every morning". Here, he boldly

suggests, "we find the beginning of... a more lasting maternal solicitude". Latter also observes (p. 107) that, in the past, fertile queen bees assuredly "did not possess all those instincts of the present-day worker that are associated with the existence and welfare of each commonwealth of bees. These instincts can only have been evolved within the limits of the workers themselves; and yet workers are sterile and incapable of handing on favourable variations to offspring, for they produce none. As a study in evolution and heredity, this question is full of interest." In all probability the original form of the neuter bee was female; and we now know, as Prof. Cyril Burt reminds me in a letter, that the same genotype can be made to produce either neuters or females (cf. also Lloyd Morgan, 1891, pp. 58-9). There is much else that shows how complex are the hereditary determinants of what we call instincts.

II. MUTATIONS AND LAMARCKISM

Lamarckism is usually credited by biologists with raising more difficulties than it removes. But there are not a few who think that sufficiently prolonged genetic research is in time likely somehow to bridge the present apparently impassable gulf between it and neo-Darwinism. Without *some* form of Lamarckism, it is hard to understand the evolution of mind, including that of instincts. The closer study of instincts may enable us to determine whether instincts are merely and always the outcome of chance variations in the germ plasm, perpetuated *ab initio* by heredity and by the operation of natural selection; or whether they have not also been evoked by the interests, needs and efforts of the organism itself, assisted by, if not also assisting, inheritable changes in the germ plasm. These questions recall views long ago put forward independently of one another by J. M. Baldwin, H. S. Osborn and C. Lloyd Morgan, as to whether new characters acquired by individual organisms—"fine adjustments" is a term suggested by Paul Weiss (1939, p. 570)—do not foster and develop congenital "coincident variations" in the same direction and thus allow of further variation in that direction (cf. J. M. Baldwin, 1902, pp. 138, 149-50). They may recall, too, a different observation of T. H. Morgan (1925, pp. 148, 150) that "an increase in the number of individuals possessing a particular character has an influence on the future course of evolution—not because the new type is more likely to mutate again in the same direction, but because a mutation in the same direction has a better chance of producing a further advance, since all individuals are now on a higher level than before".

We need also to breed experimentally between individuals of different sub-species that show diversities of the same instinct, observing the results of such hybridization from the standpoint of instinct manifestation. To this we shall return later. Further, we need to proceed experimentally on the well-known lines deliberately adopted by the successful selective breeder in mating, and in choosing for training, those individuals that show the bodily characters he most desires and those in whom the desired (e.g. retrieving, trailing and other sporting) instincts are most strongly developed.

We need, moreover, to observe—if we can, and, if so, under what conditions—new instincts actually arising (or disappearing) through mutations. Is it not surely conceivable that, by the influence, say, of X-rays, a rearrangement of chromosome sections sometimes produces *advantageous* changes, even if indirectly, in instincts? As Morgan (1925, p. 36) has said, some of the observed somatic changes due to mutations "are not greater than the fluctuating [non-herited] changes due to environment. The inheritance of the new

character, when it is as slight as this, can only be determined by a careful study of successive generations under controlled conditions, both genetic and environmental". Morgan urged (pp. 37, 38) that we should resist the too common idea "that all [artificially produced] mutant types are defectives and incapable of competing with the original form". May not the same be true for the mutations of instincts, if carefully watched for and adequately studied? David Katz (1937, p. 245) concluded that it would "appear that there exists something like mutations of instinct". He quotes an example from K. Friedrich, where a change of appetite was experimentally produced in the caterpillar, *Lasiocampa quercus*, whose natural diet is the oak. Some of these caterpillars, when transferred to the Scots pine, succeeded in using the needles of the latter as food, although many others died. Those who succeeded "achieved this by attacking from the tip, as the needle is too thick to be spanned by their jaws. The second generation ate the pine needles without difficulty; they were adapted to them and thenceforth *incapable of returning to oak-leaves*, which they attacked from the tips although they normally eat from the edges." Perhaps some kind of mutation in instinct may also explain the development of 'cuckoo' behaviour, alike in bird and in insect life.

III. THE RELATIONS OF INSTINCTS

Further comparative studies in the field of instincts may well elucidate the conditions of the appearance and the relationship of an instinct in a form much less complex than that in which it is manifest in its fully developed and useful form. Thus E. F. Armstrong (1942, p. 30) quotes the example of the robin which during courtship presents only *one* insect to its prospective mate, but carries *several* insects when he feeds their young. Among birds, in courtship-feeding, a large amount of ceremonial has been described; it partakes largely of a symbolic nature, but also seems prophetic of the "later stage in the breeding cycle when the male does feed the female". Armstrong says that only rarely does feeding occur during incubation but not during courtship. Yet there are some species of birds in which feeding apparently ceases before incubation begins. Hence it is less unlikely, he thinks, that the instinct of courtship-feeding has arisen from that of feeding the incubating mate than vice versa. Armstrong also alludes to an apparently analogous relationship in regard to nest-building in birds. As he points out (p. 18), "birds may fidget with material in a great variety of situations". The guillemot, for example, presents nesting material to his 'intended' during courtship; and the female cuckoo, perhaps harking back to the times when her ancestors built nests, has been seen to hold a twig or straw in her beak, while being wooed by the male. There must be, he thinks (p. 21), a close connexion between (a) the "picking up and disposal of material in the immediate neighbourhood of the bird", (b) certain agitated emotional states arising under different conditions, and (c) "the normal manipulation of such material" exhibited in nest-building.

Lorenz (1939) calls attention to "the transitory appearance of phylogenetically old characters during ontogeny", a further study of which may well throw light on the course of the evolution of instincts. "Thus many sparrows which, unlike their family relatives, walk instead of hopping, have when young the hopping characteristic of the family; this is especially plain if one compels nestlings to move about on their feet. He also draws attention to an observation of H. Ahlquist that among the *young* of two genera of gulls that have been evolved from the older and more general type of gu

exemplified in the genus *Larus*, an older method of fishing for food, employed by the latter, appears during their play but is lacking in the *adults* of these two genera.

Finally may be mentioned the study of the effects on instincts of partial decortication in mammals according to their level (cf. K. S. Lashley, 1938, p. 463), and the just possible application of the methods of experimental embryology and genetics, as regards the effects (including the influence of 'organizers', 'genic modifiers', etc.) on the development of instincts (cf. C. H. Waddington, 1940).

IV. INSTINCTS AT DIFFERENT ZOOLOGICAL LEVELS

We now come to the distinctive character of instincts at different levels of animal (including human) life. Here again the value of the comparative study of instincts is clearly manifest. For instincts differ so widely, say between those of insects and those of man, that a definition of instinct common to both has always proved extremely difficult. Perhaps the best (at least, from the psychological standpoint) is an adaptation of McDougall's, as an innate disposition which determines its possessor to attend to, to perceive and to feel about situations of a certain kind and to respond to them, in a particular manner and with a particular end. But the difficulty goes beyond mere definition. Not infrequently psychologists, and also, I think, some biologists, have refused to credit man with instincts at all. For one American psychologist, E. B. Holt (1931, pp. 24, 37), so-called human 'instincts' are learnt, never inherited: they are merely 'habit complexes'—built, it may be at most conceded by others, upon very elementary and relatively minute instinctive bases. For Holt, even reflexes are not inherited; for him they are acquired from the primordial "diffuse random activity of the embryo", on which, he believes, the "law of the conditioned reflex" comes to operate and in this way ultimately creates 'instincts'.

As I have said elsewhere (C. S. Myers, 1942, pp. 153-4), many of those who hold these, or far less extreme, views, insist that what is inherited in all instincts "must be describable neurologically, in terms of clear-cut, specific, material structures—developing from equally particulate genes in the chromosomes into equally definite neural mechanisms of response". But in man, at least, "instincts consist far less essentially in the release of appropriate, inborn, mechanized reflexes, far less essentially in any stereotyped means of achieving certain 'ends', than in the awareness (imperfect though it must at first be) of those 'ends', in the interests in and the desires (vague but powerful) for them, in the 'innate determining tendencies' evoked [a term which I shall try to explain presently], and in the use of intelligence brought to bear in their achievement". What, for example, is inherited in man for the display of the maternal protective instinct is not any *specific* behaviour, such as the well-known feigned display of a wounded wing which occurs in certain birds, but rather the innate, inherited 'end' and an inherited *general* 'determining tendency' to protect the young in any intelligent way available. In man, indeed, intelligence has largely usurped the functions of *specific* inherited behaviour. But the instinctive nature of the general determining direction of behaviour is nevertheless clearly recognizable. As others (cf. David Katz, 1937) have pointed out, human instincts "can only be identified by comparative studies of animal and insect life".

V. INHERITED DETERMINING TENDENCIES

Let me now try to explain what is meant by an innate, inherited, 'determining tendency'. When I try in vain to recall a forgotten word, or to solve a baffling problem, some obscure process is often started by which such effort of recall or of solution proceeds unconsciously; an acquired 'determining tendency' appears to be set up which continues unconsciously, while attention is engaged elsewhere, or during sleep, until suddenly the forgotten word rises to consciousness or the correct solution of the problem presents itself. Perhaps similarly when I hypnotize a subject and suggest to him that, on waking from hypnosis, when a certain person enters the room, he will (in broad daylight) switch on the electric light, a 'determining tendency' has by such suggestion been set up, whereby, when the dictated situation presents itself, the subject feels constrained to achieve the dictated 'end'. He may achieve it in a variety of ways: no details of specific neuromuscular activity have been dictated to him. All that he feels is an inexplicable impulse to attain a certain 'end', i.e. to turn on the electric light.

It must be admitted that there are psychologically different conditions in these three examples, in which the same term, 'determining tendency', is employed. When we vainly try to remember a forgotten word, there can be only *one* solution to the desired, but unknown, 'end'. When, however, we try to solve an elusive problem, there may conceivably be *several* possible solutions which will equally well satisfy our needs and criticism. In the former case, too, the forgotten word has been previously known; whereas, in the latter case, the solution cannot have been forgotten, because it has never been known. And when post-hypnotic suggestion has been given, its performance depends on the presentation of a certain situation (unforeseen by the subject) and then on the arousal of a certain, feasible but unwanted, 'end' which the subject feels impelled to endeavour to accomplish. Here, too, the 'determining tendency' is initiated by the hypnotizer, not by the subject. Moreover, although we are not forced to accept the notion of 'determining tendency' as the true, or sole, explanation in all three cases—for example, a forgotten word may conceivably be due to temporary inhibitions, the later release of which (aided, perhaps, by the 'determining tendency') may account for the subsequent revival of the word—nevertheless in each case the same unconscious process of 'determining tendency', however different be the conditions of its activity, may be legitimately invoked.

Now may it not be supposed that in many human instincts a similar 'determining tendency',¹ in this case *not acquired* by volition or by suggestion, but *inherited*, is largely, at least, responsible for their display? And may not a comparative study of infra-human organisms reveal a gradual evolution of such determining tendencies, a gradual lessening of fixed mechanical responses, a gradually decreasing perfection of the instinctive response on its first appearance, and a gradually increasing influence of intelligence on improving its subsequent performances and on adjusting them to varying environmental conditions naturally or experimentally introduced? Rudimentary and indeed not easily recognizable as these determining tendencies may be in the instincts exhibited in the lower forms of animal life, do they not constitute really a fundamental and most important feature distinguishing instincts from compound or chain reflexes and taxes (with which they may be interlaced), on the one hand, and from intelligence, on the other?

¹ I have since discovered that a similar suggestion had been made in a footnote of a few words by the late Sir Percy Nunn (1920, p. 180): "Instincts may, of course, be thought of as innate 'determining tendencies'."

VI. THE ROLE OF INTELLIGENCE

Although—even in insects—the particular acts instinctively employed by them, say, in getting food, avoiding foes, laying eggs and providing food for them, seem to be performed, as Hingston (1928, p. 131) says, “because they must be done, the creature knowing neither how nor why”, although they often show gross inflexibility, crass error, extreme folly and the narrowest limitations, yet, as many field naturalists have observed, intelligence usually enters into such acts, very differently, it must be admitted, in different insects, e.g. to a small extent in spiders, to a far larger extent in ants and wasps, and to some extent even in butterflies and cockroaches!

May not closer observation show that instincts are performed more effectively on the second than on their first performance? And if this improvement (however minute) be due largely to intelligence, how can such practice make more perfect unless we assume that on the very first performance of an instinct the organism has some notion, however vague, of its end, due to and accompanying what I have called an ‘inherited determining tendency’? (Increasing neurological maturation is obviously an inadequate explanation.) Granted that the organism inherits certain patterns, certain ‘schemata’, of behaviour, is it not in accordance with modern psychological teaching, as Prof. F. C. Bartlett points out in a letter to me, to suppose that, like other mental processes, instincts need to be credited with some role in assisting mental development, retaining the characters of the inherited framework on which they thus operate, yet always utilizing intelligence and incoming sensory and other material?

VII. OTHER CRITERIA OF INSTINCTS

May not closer comparative study show that intelligent control, however slight, is an essential criterion of instincts? That another criterion is the perception of a complex ‘situation’, not the mere sensation of a simple ‘stimulus’? And that some feeling (not necessarily, as McDougall held, of emotion) is yet another important criterion? We shall thus come to realise how different instincts are from chained or compound reflexes. The situation and its perception which evoke an instinct must always have some ‘meaning’, however vague, for the organism—some ‘valence’, as E. S. Russell (1941, p. 253), in his wish to avoid psychological terminology, prefers to call it.

VIII. TAXONOMIC VALUES

I have left to the last mention of the value of the comparative study of instincts in regard to the taxonomic significance of similar instinctive behaviour. As Armstrong (1942, p. 56) observes, “until quite recently display behaviour [as indeed all other instinctive behaviour] was disregarded by systematists; indeed there are few to-day who realise how much it has to tell us about the affinities of living creatures... But now it is clear that the interests of science will be best served by co-operation between the taxonomist and the out-of-doors observer.” As Lorenz (1939) points out, it was clearly shown years ago by C. O. Whitman that “instinctive behaviour is a character of definite phylogenetic constancy and thus of taxonomic value”, and the same evolutionary standpoint has been followed by O. Heinroth and others. Heinroth, for example, he says, has examined the distribution in birds of two types of scratching: (a) a lowering of the wing before scratching with the foot which begins from behind; and (b) no lowering of the wing while the scratching

foot begins its movement from in front. Heinroth finds these two types determined "exclusively by the taxonomic grouping" of the birds, and not by such characteristics as shape of the foot, length of the limb, etc. Lorenz, himself, has followed along similar lines of research, choosing the family of Anatidae (swans, geese and ducks). He finds, for example, that the males of the Mallard group, e.g. *Anas poecilorhynca*, *melleri*, *obscura*, *superciliosa*, etc., exhibit, like many other Anatinae, what he calls the 'chin-lift' which, he says, comparative studies prove to be "a phylogenetic descendant of a symbolic drinking act", while the females of the Mallards exhibit instead a still more widely distributed 'pursuit' response—"a symbolic threatening over the shoulder towards the rear". Both acts function together as one ceremony. But among the Widgeons the threatening over the shoulder is lacking, and both sexes show a response corresponding to that of the Mallard drake. In the Gadwall, *Chaulelasmus streperus*, both sexes exhibit the 'chin-lift'; and, in addition, the females give the threatening over the shoulder, as in the females of the Mallard group. Now the Gadwall is morphologically intermediate between the Mallard and the Widgeon, and hybrids between the Mallard and the Widgeon show exactly the same mingling of behaviour characteristics "as are found in the Gadwall as a phylogenetic differentiation".

Whereas the *Cerceris* wasp paralyzes its beetle by piercing it in a single spot where the three thoracic ganglia lie very close together, certain species of the *Sphex* wasp paralyze their cricket by piercing it in three places—in the neck, in the joint between the first two segments of the thorax, and towards the abdomen; here the three ganglia are widely separated. Again, whereas *Cryptocheilus rubellus* paralyzes its tarantula (after a few preliminary stings) by stabbing it between the bases of the second and third legs, a closely allied species, studied by Fabre (cf. Hingston, 1928, pp. 63-5), stabs its spider first in the mouth and next behind the fourth pair of legs just in front of its belly. Such differences in behaviour show how dangerous, indeed impossible, it is to predict from the details of instinctive behaviour exhibited in one species those that will be found to be exhibited by another.

On the other hand, as Hingston (p. 273) points out, it is noteworthy how, for example, termites and ants, which, he says, differ as widely from one another as the opossum differs from man, have each developed "a highly elaborate social organization evolved on similar principles and working on an almost identical plan". In each a 'caste' system of kings, queens, soldiers and workers has been "organized on almost the same principle". Each has hit on the same plan of nest-building. Each has other insects of many varieties 'lodging' with it in its nest. The foraging species of termites send out parties to collect grass in ways of which every detail "can be paralleled in some species of ant". So can its specialization of the functions of workers and those of soldiers for defence purposes, etc. Such close resemblances in instinctive behaviour, exhibited by only distantly related organisms, make us wonder about its origin; and they remind us of the contrast between 'analogous' and 'homologous' features drawn by biologists in respect of bodily characters.

We see, then, in what a variety of directions the comparative study of instincts promises a fruitful harvest of fresh knowledge. Surely it invites irresistibly the far closer future attention of observers of both animal and of human behaviour.

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ON ORR'S HYPOTHESES CONCERNING THE FRONT AND BACK VOWELS

BY E. L. THORNDIKE

In the September 1944 issue of this *Journal*, Prof. John Orr argues that, among vowel sounds in English, [ɪ] (as in pin) and [i] (as in machine) are favoured in the "linguistic expression of 'minuteness', 'slenderness' and other kindred notions". It seems desirable to check this hypothesis, and also to measure the degree of the favouritism.

I have done so by listing all the monosyllables among English words (exclusive of proper names) that occur once or more per million running words and contain [ɪ] or [i] as their vowel sound, and counting up those that suggest smallness and largeness respectively. To compare with the results of these counts I have listed for each of the [ɪ] or [i] words, the English words (again exclusive of proper names) that are identical in sound except that [ɛ] (as in bet), [eɪ] (as in bate), [æ] (as in bat), [ɔ] (as in box), [oʊ] (as in bone), [ʊ] (as in bush), [u:] (as in fool), [aʊ] (as in bough), [aɪ] (as in bite), or [ʌ] (as in but) replaces the [ɪ] or [i].¹ Thus, as one line of the record, we have *babe*, *bib*, *bob*, *boob*, and *bub* (colloq. American for boy); as another line we have *bid*, *bed*, *bad*, *bode*, *bowed*, and *bud*; as a third line we have *big*, *beg*, *bag*, *bog*, and *bug*. These lists for comparison are not restricted to words occurring at least once per million running words. Nor do they include all English words. The labour of doing either of these two things would be wasted. All that is required is that the lists be impartial with respect to the issue and free from excessively rare words. I therefore simply tried each sound and entered the word if I recognized it as a real English word. I perhaps missed some common words by inadvertence.

The ratings for smallness and largeness should of course be strictly comparable in all the lists. To that end I made no ratings until all the lists were completed and then rated line by line with care to use similar standards to the best of my ability.

I used four rubrics: *s* for words which seemed clearly suggestive of smallness, *s?* for words which seemed probably so, *l* for words which seemed clearly suggestive of largeness, and *l?* for words which seemed probably so. The facts appear in Table 1. All words expressing sounds were excluded from these computations, because they may well be special cases. They will be considered later.

The facts of Table 1 give strong support to Prof. Orr's hypothesis about the relation of [ɪ] and [i] to smallness. The smallness/largeness ratio is twelve times as large for [ɪ] and [i] as it is for [ɔ] and [o]; and there is no likelihood that this difference is due to chance. Using the customary statistical criterion of practical certainty, the relative favouritism of [ɪ] and [i] for smallness and that of [ɔ] and [oʊ] for largeness are both certain, and the ratio may be said to have certainty to the second power.²

¹ I also recorded words in which [ɪ] or [i] was replaced by [ɔ] or [ɑ:] (as in barn), [eə] (as in bear), [ə:] (as in burn), or by [ʊ] or [ju:] (as in angularity and beauty); but the data are far too scant in the first case to be useful, and are scant and of doubtful interest in the other three cases. I did not record [ɔɪ] (as in boy). A few of the words which I entered under [æ] (e.g. staff) would be put under [ɔ] or [ɑ] by some English and a few American speakers.

² The theoretical chance that the difference of +0.046 between the percentage of *s* words in [ɪ] or [i] and the percentage of *s* words in [ɔ] or [oʊ] could occur by chance is about 1 in 1700 and the corresponding chance for the difference of -0.051 in the percentage of *l* words is about 1 in 16,000. The chance for the joint occurrence is less than 1 in 250,000,000.

The facts in Table 1 for [ʊ] and [u:] give further support. Taking them at their face value the smallness/largeness ratio is infinitely larger for [ɪ] and [i] than for [ʊ] and [u:]. The percentages of *s* and *l* words in [ʊ] or [u:] (0.000 and 0.049) are not, however, as reliable as one would wish.¹

The difference between [ɪ] or [i] on the one hand and [ɔ, ʊ, ʌ] and [u:] on the other is indubitable. And it is great in the sense that the smallness percentages are $7\frac{1}{2}$ and 2, and that the smallness/largeness ratios are 5.64 and 0.34. But it is small in the sense that $92\frac{1}{2}$ % of the [ɪ] or [i] words mean largeness or neutral, whereas 98 % of the [ɔ, ʊ, ʌ] and [u:] words do so. The average or median value of an [ɪ] or [i] sound with respect to size verges only a little from neutrality toward smallness whereas the average or median

Table 1. *The values of vowel sounds in English words as suggestive of smallness and largeness*

n = number of words containing the specified sound
s = number of words suggesting smallness
s? = number of words probably suggesting smallness
l? = number of words probably suggesting largeness
l = number of words suggesting largeness

	<i>n</i>	<i>s</i>	<i>s</i> ?	<i>l</i> ?	<i>l</i>	$s + \frac{1}{2}s?$	$l + \frac{1}{2}l?$	$\frac{s + \frac{1}{2}s?}{n}$	$\frac{l + \frac{1}{2}l?}{n}$	$\frac{s + \frac{1}{2}s?}{l + \frac{1}{2}l?}$
[ɪ] as in bit	289	26	1	1	3	26.5	3.5	—	—	7.57
[i] as in machine	238	11	4	1	3	13	3.5	—	—	3.71
[ɪ] or [i]	527	37	5	2	6	39.5	7.0	0.075	0.013	5.64
[ɛ] as in bet	132	4	2	0	0	5	0.0	—	—	∞
[eɪ] as in bate	207	4	0	2	3	4	4.0	—	—	1.00
[ɛ] or [eɪ]	339	8	2	2	3	9	4.0	0.027	0.018	2.25
[æ] as in bat	181	10	2	1	6	11	6.5	0.061	0.036	1.69
[ɔ] as in box	196	4	3	2	11	5.5	12.0	—	—	0.46
[ʊ] as in bone	200	5	2	5	11	6	13.5	—	—	0.44
[ɔ] or [ʊ]	396	9	5	7	22	11.5	25.5	0.029	0.064	0.45
[ʌ] as in but	152	0	0	0	3	0	3.0	—	—	0.00
[u:] as in fool	130	0	0	3	3	0	4.5	—	—	0.00
[ʊ] or [u:]	153	0	0	3	6	0	7.5	0.000	0.049	0.00
[aɪ] as in bite	193	3	8	8	7	7	11.0	0.036	0.057	0.64
[ju:] as in beauty	29	3	0	0	0	3	0.0	0.103	0.000	∞
[ʌ], [u:] or [ju:]	182	3	0	3	6	3	7.5	0.016	0.041	0.40
All the above sounds	1970	78	23	24	56	89.5	68.0	0.046	0.035	1.32

value of an [ɔ, ʊ, ʌ] or [u:] sound verges a little from neutrality toward largeness. The difference is small enough so that, so far as I can ascertain, no psychologist or linguist until Prof. Orr tried to prove its existence. If a business man wanted the product he was selling to be associated in customers' minds with bigness rather than smallness he would be wise to call it [Thugōn] rather than [Thigeen], but he should not expect much from the difference!

There is little in Table 1 contrary to the hypothesis that the 'narrow' 'front' vowel sounds are associated with smallness, and the 'broad' 'back' vowels with largeness. The smallness/largeness ratio for all the words is 1.32; [ɛ] and [eɪ] (2.25) vary from this toward [ɪ] and [i]; and [æ] is a little above it, as would be expected. The low ratio for [aɪ] can be explained if the [a] is dominant over the [ɪ] in this diphthong in so far as suggestiveness of magnitude is concerned.

¹ Theoretically the percentage of 0.000 is perfectly reliable; and that it may be very close to the truth will be appreciated by any reader who will write down all the monosyllables he can think of that contain *u* or *u:*, and search among them for one that has an emphatic suggestion of smallness.

Turning to Orr's antiphony in English words relating to sounds, our objective sampling of monosyllables supports it emphatically. The number of words is, however, too few to make the quantitative determinations authoritative. Below are listed all the words with [ɪ, i, ə, ov, v] and [u:]. I have classified them roughly as: words suggesting little volume and high pitch, words suggesting little volume, words suggesting high pitch, doubtful words, words suggesting low pitch, words suggesting much volume, words suggesting low pitch and much volume. By my classification 17 of the front-vowel words are in the first three classes and 2 in the last three, whereas for the back-vowel words the corresponding numbers are 4 and 13. Any reasonable correction of my classification will not reduce the disparity greatly.

Small volume and high pitch:

Words with [ɪ] or [i]: click, clink, shrill, squeak, squeal, ting, trill (7).

Words with [ə, ov, v] or [u:]: flute (1).

Small volume:

Words with [ɪ] or [i]: hiss, hist, kiss, lisp, swish, weep (6).

Words with [ə, ov, v] or [u:]: coo, cooed, moan (3).

High pitch:

Words with [ɪ] or [i]: lilt, scream, screech, shriek (4).

Doubtful words: bleat, grief, jeer, rhythm, sing, speak, toot, tune, tunes, wheeze (10).

Low pitch:

Words with [ə, ov, v] or [u:]: choke, croak, groan, pooh, poop (vulgar usage), swash (6).

Large volume:

Words with [ɪ] or [i]: cheer, din (2).

Words with [ə, ov, v] or [u:]: hoot, squawk, squall, whoop (4).

Large volume and low pitch:

Words with [ə, ov, v] or [u:]: moo, roar, woosh (U.S. slang) (3).

In support of Prof. Orr's general contention that sounds as such have values, it may be noted that the writer has found that, in English, German, Russian, Greek, Finnish, and Hungarian, the frequency of occurrence of certain sounds and combinations of sounds in words of notably pleasant meaning differs from the frequency of their occurrence in words of notably unpleasant meaning, and to an extent far beyond explanation by chance.¹ At least one case, that of the association of the sounds of k, g, and χ (as in German *ach* and *Buch*), and especially of *kr* and *gr*, with unpleasantness, seems to hark back to a general human experience with growls, grunts, and groans in negation, pain, and effort. In large part, however, the values of sounds as suggesting desirables and undesirables are caused by something that is *not* common to all six of these language groups. We should canvas the significance of the front versus the back vowels in several widely separated linguistic stocks before concluding that it is largely a matter of common human physiology and psychology.

Such measurements as I have had time to make seem, indeed, to show that English is a rather special case in the relation of front and back vowels to smallness and largeness respectively.

¹ A report of the facts will appear shortly in the *Psychological Review*.

I have selected from a sample of 443 fairly important Attic Greek stems, mostly monosyllabic, those suggesting smallness and those suggesting largeness, and have computed the smallness/largeness ratios as was done for the English words.

Words with *iota* or *upsilon* have higher ratios than the 0.66 which is the figure for all the words selected, but words with α , o , ω , $\alpha\nu$, or $o\nu$ are only a bit lower. Words with ϵ , $\epsilon\iota$ or η do not show intermediate ratios as in English, but are well below the back-vowel words. The ratios are:

For words with ι ,	1.38
For words with υ (approximately I.P.A. y),	0.89
For words with ϵ , $\epsilon\iota$ or η ,	0.36
For words with ι , υ , ϵ , $\epsilon\iota$ or η ,	0.69
For words with α , o , ω , $\alpha\nu$ or $o\nu$,	0.64
For all the words selected	0.66

I have also selected from a sample of 1264 Hungarian words or stems 45 suggestive of smallness, 21 probably suggestive of smallness, 39 suggestive of largeness and 61 probably suggestive of largeness.¹ In computing the smallness/largeness ratios for Hungarian the allotment for a word or stem of more than one syllable was fractionized. The facts, shown below, are much more like those for Greek than those for English. The front vowels are associated with smallness and the back vowels with largeness, but $[\epsilon]$ and $[e]$ outdo the back vowels in this respect. The ratios are:

For words with $[\text{ɪ}]$ or $[\text{i}]$,	2.22
For words with $[\text{y}]$ or $[\text{y:}]$ (approximately French u),	1.96
For words with $[\epsilon]$ or $[e]$,	0.64
For words with $[\text{i}, \text{i}, \text{y}, \text{y:}, \epsilon]$ or $[e]$,	1.02
For words with $[\text{a}, \text{a:}, \text{ɔ}, \text{o:}, \text{v}]$ or $[\text{u}]$,	0.69
For all the words selected	0.80

Similar treatment of a sample of 503 Finnish words or stems gives differences between front and back vowels more like those for English, but still not nearly so great. The smallness/largeness ratio is 1.00 for all the selected words, is 1.91 for $[\text{ɪ}]$ and $[\text{i}]$, is 0.58 for $[\text{a}, \text{o}, \text{o:}, \text{v}]$ and $[\text{u}]$, and is 2.00 for $[\epsilon]$ and $[e]$. It is 2.28 for $[\text{æ}]$ (a as in fat).

The front and back vowels in Greek, Hungarian, and Finnish do differ in their suggestiveness of smallness and largeness, but the differences are much less than in modern English. My knowledge of Old English (Anglo-Saxon) is extremely limited, but I am under the impression that the differences in it are much less than in modern English.

My samples from Greek, Hungarian, and Finnish are too small to justify any detailed discussion of the association of the front vowels with high pitch and small volume, and of the back vowels with low pitch and large volume. There is some association.

¹ The list is random as regards all relations to smallness and largeness, being one prepared and transcribed phonetically for me by Dr L. C. Tihany for an entirely different purpose.

NOTE ON PROFESSOR THORNDIKE'S PAPER

By JOHN ORR

The statistical evidence in Prof. Thorndike's paper may be said to confirm some of my contentions in the article to which he refers. But the evidence is slightly beside the point, inasmuch as I was concerned chiefly with vowel antiphony, i.e. the opposition of vowel sounds in words relating to, roughly, the same psychological field: e.g. *tip* and *top*, *slit* and *slot*, *strip*, *strap* and *strop*.

I am thus more impressed by the single example of Greek *μικρός*, 'small', and *μακρός*, 'big', than by any statistical comparison, however comprehensive, of the frequency of *ι* or *α* in heterogeneous Greek words that may or may not suggest 'smallness' or the reverse. I see a 'functional' semantic value in the opposition of the vowels of *μικρός* and *μακρός*, similar to that in Scots *Mony a mickle maks a muckle*; just as I see a functional difference in the vowels of *a silly giggle* and *a hearty laugh*, or of *a mincing titter* and *a loud guffaw*.

Therefore, though Prof. Thorndike may be right when he asserts that a business man should not expect much from the suggestive quality of the vowels of 'Thugōn', as an alternative to 'Thigēen', when naming a product whose 'bigness' he wishes to underline, I would affirm that if he were naming *two* products, similar in character but dissimilar in volume or power, he would be well advised to give the name 'Thugōn' to the stronger or more massive of the two and 'Thigēen' to its weaker brother.

ASPECTS OF PERSONALITY IN THE CLASSROOM: A STUDY OF RATINGS ON PERSONAL QUALITIES FOR A GROUP OF SCHOOLBOYS

By DUNCAN HOWIE, *New England University College, University of Sydney*

I. *Introduction* (p. 15). II. *The selection of traits* (pp. 15-16). III. *The method of rating* (p. 17). IV. *Subjects* (p. 17). V. *The factorial analyses* (pp. 18-19). VI. *Discussion of factors* (pp. 19-27). VII. *Conclusion* (pp. 27-28). *References* (p. 28).

I. INTRODUCTION

In this paper the intercorrelations of certain estimates of personal qualities are analysed by several variants of factorial analysis.¹

It is believed that the results are of some value in supporting or clarifying factors of temperament or of personality offered in other studies. An incidental interest of the work lies in the comparison of the variations in the description of the data by the different methods of analyses. With regard to the data, the writer would urge a very serious, and he believes, not unsuccessful effort to provide conditions for rating which meet some of the criticisms of this approach.

II. THE SELECTION OF TRAITS

The following principles governed the selection of traits to be rated:

(1) The more important theories of personality, the literature on mental hygiene, mental pathology, vocational guidance and statistical or experimental studies were examined in an attempt to list the more salient and generally accepted qualities of a stable personality.

(2) From within this list those qualities not deemed suitable for observation and assessment by teachers under day-school conditions were eliminated. One important group of such exclusions should be noted, that of moral qualities. There must be considerable doubt about the value of assessments for such moral qualities as used in Webb's⁽¹⁵⁾ investigation—*puremindedness, interest in religion, kindness on principle*, or such socially evaluative qualities as *tact*; the teacher's opportunities for observing relevant behaviours (if these could be adequately specified) are limited and each is likely to put upon the terms his own particular interpretation.

(3) Further exclusions were made of traits which in investigations such as those of Webb⁽¹⁵⁾ and Cattell⁽⁵⁾ showed obvious overlap as indicated by their correlation with other traits.

(4) Traits were omitted where there was little or no agreement shown between the estimates by the raters, e.g. *quickness of emotional change*.

(5) The rating procedure required an interval of at least one week between each trait rating. This operated as a general limiting condition on the number of traits.

¹ The basic material of this paper was originally presented in 1935 as a thesis for the degree of Ph.D. in the University of London. Additional methods of analysis in the light of work not then available to the writer are here included.

In all, ten traits were rated by the teachers, taken in the following order so that, as far as possible, traits apparently allied in nature should not immediately follow one another:

(1) Bodily activity; (2) Perseverance; (3) Excitability; (4) Quickness of intelligence; (5) Cheerfulness; (6) Mental activity; (7) Common sense; (8) Continuity of interest; (9) Initiative; (10) Self-consciousness.

For four of the nine groups studied the final estimate was the average of four ratings, for three of the groups the average of three ratings, and for one group the average of two ratings.

As a teacher's attitude to his charges is a rather specialized one and his opportunities of observing under normal classroom conditions spontaneous behaviour, particularly of the emotional kind, considerably limited, assessments on three qualities were obtained from the boys themselves.

A method of class ballot was adopted by which the whole of each group rated its members on three traits: *popularity*, *tendency to show fear* and *tendency to show anger*. For the *popularity* score each boy expressed his degree of liking for each other boy in the group on a five-point scale. For *tendency to show fear* each boy was asked to write down the names of (a) three boys in his class who showed the quality in the most marked degree, and (b) three boys who showed the quality in the least marked degree. A similar procedure was adopted for *tendency to show anger*. Score in each case was the total number of times mentioned under (a) less the total number of times mentioned under (b). Before these three estimates were secured the object of the investigation was explained to the boys, the trait was discussed and examples cited; it was stressed that their co-operation would be exceedingly helpful and they were assured that the information would be entirely confidential. The boys responded excellently; they were keenly interested and took the matter very seriously. These data are among the most important of this study. They provide a valuable check on the teacher's estimates in that they are from a different source with different and probably better conditions for observing personal qualities and, further, they are not likely to be influenced by the same prejudices, stereotypes or preconceptions which may colour the teacher's estimates.

Reliabilities for the trait estimates are given in the diagonal cells of the table of correlation on p. 20. It will be seen that they follow the general order found with regard to ratings in that the more observable or more overt traits have the higher reliability.

In addition to the ten traits estimated by the teachers and the three estimated by the boys, assessments were secured on an adaptation of the Allport⁽¹⁾ Ascendancy-Submission Scale, and the boys were graded according to their scores in an examination at the end of the autumn term and their scores on Burt's Northumberland Scale for general intelligence.

As outlined in the scheme of rating, assessments for *each* group were distributed about the average for that group and marks allotted as follows:

+3	+2	+1	0	-1	-2	-3
5 % of group	10 %	20 %	30 %	20 %	10 %	5 %

This gives a close approximation to a normal distribution on a range of 5σ :

+3	+2	+1	0	-1	-2	-3
3.1 %	10.5 %	19.8 %	28 %	19.8 %	10.5 %	3.1 %

III. THE METHOD OF RATING

The following procedure represents an effort to improve rating data:

- (1) Traits were selected which could be observed under school conditions.
- (2) Where possible raters were selected who had known the subjects for at least one year.
- (3) A schedule describing traits was discussed with the raters.
- (4) The raters observed the subjects for a particular trait for at least one week, at the end of which final ratings were made. They were urged to concentrate exclusively on the particular trait being rated.
- (5) To make the act of comparison explicit a method of card sorting was used. Each rater sorted a pile of cards bearing the names of the boys in his group into:
 - (a) Three piles: x , one-fifth of the group above average for the trait; y , three-fifths of the group at average for the trait; z , one-fifth of the group below average for the trait.
 - (b) This grouping above average, average, below average was repeated for *each* of the groups x , y , z , with proportions changed to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{4}$, the average in this grouping being that for the particular sub-group.
 - (c) The nine groups from (b) were reduced to seven by combining the 'below average' group for x with the 'above average' group for y and the 'below average' group for y with the 'above average' group for z .

It is to be noted that this procedure helps to make the act of comparison explicit, facilitates the comparison of one subject against another, incorporates something of the advantage of the 'man-to-man comparison' technique, involves at each stage a simple movement of comparison as discrimination above or below average, and finally yields a fairly close approximation to a normal distribution.

The raters were unanimous in saying that they found the description of traits and the sorting technique helpful. One headmaster found it was making his staff 'character conscious'; another was so impressed by the practical value of the technique that he planned to use it for annual promotions.

IV. SUBJECTS

Nine groups were studied comprising 156 Wiltshire schoolboys and 139 London schoolboys. The majority were from secondary schools, but 49 of the Wiltshire group were from a senior school and 44 of the London boys were from a central school. With the exception of 51 Wiltshire secondary school boys in their fourth year, the boys were in their second year at their respective schools. For the seven second year groups the average age for each group ranged from 12 years 9 months to 13 years 3 months with standard deviations ranging from 4.3 months to 10.9 months. The average ages of the two fourth year groups were 14 years 10 months (s.d. 9.5 months) and 14 years 11 months (s.d. 2.9 months). For a time the correlations for these older groups were kept separately but, as a comparison of these with the correlations within the other groups showed no consistent tendencies to any significant differences in the correlations, it was decided to take the correlation of the various measures over the whole population.

V. THE FACTORIAL ANALYSES

The intercorrelations of the sixteen variables, their probable errors and their reliabilities are given in Table 1, on p. 20.

In the original thesis these were analysed by Thurstone's centroid method⁽¹³⁾ and by Hotelling's method of principal components⁽⁷⁾. The Hotelling method was carried to the extraction of four factors. As at this stage there appeared no marked discrepancy between the results from the Hotelling method and the results from the Thurstone method, the former was discontinued and the latter, much more economical in time and labour, continued to the extraction of two further factors. An interpretation of the resulting factors was then offered on the basis of saturations for the two methods for four factors, and the Thurstone saturations for a further factor. The pattern of factor saturations for the sixth factor was such that no interpretation could be offered.

Thurstone has very adversely criticized such a procedure: "No matter how the correlational matrix is factorized, the axes must always be rotated before any psychological interpretation can be made" (⁽¹⁴⁾, p. 84). The Thurstone centroid matrix for five factors is here, therefore, rotated by the graphical method of rotating in one plane at a time which Thurstone considers "still probably the best..." though not "ideal" (⁽¹⁴⁾, pp. 72-3).

The purpose of rotation is, in general, to eliminate or reduce negative saturations and to maximize the number of zeros. As criticisms of negative saturations with regard to cognitive abilities, even if justifiable, have little point as applied to measures of personal or temperamental characteristics, the procedure adopted was, without directly attempting to lessen the negative saturations, to seek orthogonal axes in the groups which maximized the number of zeros.

Though the centroid matrix was subjected to eight rotations, the resulting pattern only approximately satisfies the two requirements for Thurstone's "simple structure", i.e. at least one zero in each row and at least as many zero loadings in each column as there are columns (⁽¹³⁾, pp. 150-1). Taking as warranting an interpretation as zero, a saturation for any variable which is less than twice the average of the probable errors for the original correlations of that variable, the rows with one exception satisfy Thurstone's condition, but two of the columns have only three in place of five zeros.

The original analysis in terms of unrotated factors suggested that the teachers' estimates of personal qualities were influenced by the scholastic ability of their pupils. As a check on this the examination results and scores on the intelligence test were partialled out from the original correlations. The second order partials were then analysed by Burt's simple summation method⁽⁴⁾. The resulting factorial matrix was then rotated as above.

In most American studies the centroid or orthogonal matrix is used merely as the basis for rotation and the interpretations are offered in terms of the rotated matrix only. Burt, however, argues that the two patterns of factor co-efficients are but different ways of describing or classifying the correlational matrix. "If we grant a psychological meaning to the simplified factor-pattern obtained *after* transformation... the transformation itself is of such a nature that the initial factor pattern obtained *before* transformation must always have a related interpretation" (⁽⁴⁾, p. 307). And again: "...if we grant that factors are essentially principles of classification, then, *bipolar factors denote the corresponding principles of 'dichotomous' classification, while the corresponding group-factors deducible from them denote the corresponding principles of 'manifold' or co-ordinate classifica-*

tion. And no one would contend that the dichotomous classification of, say, 'Porphyry's tree' was necessarily devoid of meaning, because half the subaltern-genera were negative and must first be converted into positive or null classes" (4), pp. 309-10). Further, he urges against the claim for rotation as necessarily providing a better basis for interpretation, that, as a further remove from the original data, it carries with it its own limitations and possibilities of distortion: "I maintain, therefore, that the somewhat arbitrary procedures by which rotations are carried out is apt to obscure lines of classification that were plain enough in the matrix of bipolar factors before rotation, and tends to import other lines of classification that are actually a product of the factorist's tacit assumptions" (4), p. 316).

There is no settled criterion for adopting one method of factorial analysis to the exclusion of others apart from the rather subjective one of the psychological intelligibility of the results. The only justifiable procedure appears to be a parallel consideration of the results of the different methods in an attempt to show their common ground and major divergencies. This procedure is adopted. Incidentally, as applied to the present data this method of parallel consideration and cross-reference may have some value as exemplifying differences in the descriptive pattern resulting from the different procedures.

Thus, the data are analysed by the following methods:

- A. Hotelling's method of principal components.
- B. Thurstone's centroid method.
- C. Thurstone's centroid method rotated as described above.
- D. Second order partials from the original coefficients of correlation (i.e. with intelligence results and examination results held constant) analysed by Burt's method of simple summation.
- E. The above rotated.

The methods will be hereafter referred to by the letters A, B, C, D, E, as above.

The results of the analyses are tabulated in Table 2, p. 21.

Entries under the heading h^2 give the communality for each variable, that is, the sum of the squares of its factor loadings, the proportion of its variance due to the factors which it has in common with the other variables. It will be noted that for the four major factors the ascendancy-submission questionnaire has a very low degree of communality. The average of the probable errors for the initial correlations for each variable is given in the final column. This should serve as some indication of the degree of significance which may be ascribed to the factor loadings.

VI. DISCUSSION OF FACTORS

Factor I. In both analyses A and B the weightings for this factor suggest that the estimates reflect a judgement on all-round personal adequacy, involving not merely ability, but social competency as well. This, in effect, was what the writer had in mind in describing *common sense* on the rating schedules as follows:

+3	-3
Never at a loss in everyday affairs	Confused and incompetent in everyday problems

This trait has the highest saturation in A (0.86) and the third highest in B (0.77). The teachers' estimates generally are in line with this; they may be taken as indicating satisfactory adjustment of the subjects to one aspect of the school situation, the teachers'

Table 1. *Intercorrelations and their probable errors*

Positive signs are omitted from the correlation coefficients. The correlation coefficients are arranged horizontally; the probable errors vertically; and the reliabilities diagonally

	(1) Initia- tive	(2) Quick- ness of intelli- gence	(3) Common sense	(4) Mental activity	(5) Conti- nuity of interest	(6) Perse- verance	(7) Cheer- fulness	(8) Bodily activity	(9) Examina- tion results	(10) Popu- larity	(11) Intelli- gence test	(12) Excita- bility	(13) Ascen- dancy sub- mission	(14) Anger	(15) Self- con- sciousness	(16) Fear
(1)	0.766	0.716	0.685	0.675	0.515	0.476	0.557	0.556	0.421	0.354	0.393	0.362	0.147	0.145	-0.333	-0.327
(2)	0.020	0.759	0.700	0.817	0.622	0.636	0.436	0.387	0.533	0.307	0.391	0.278	0.151	-0.054	-0.120	-0.158
(3)	0.024	0.022	0.795	0.670	0.736	0.691	0.472	0.334	0.596	0.511	0.330	-0.112	0.025	-0.047	-0.110	-0.309
(4)	0.029	0.018	0.036	0.830	0.726	0.650	0.331	0.124	0.640	0.292	0.456	0.274	0.076	-0.092	-0.069	-0.015
(5)	0.030	0.025	0.018	0.026	0.817	0.750	0.261	0.071	0.609	0.340	0.359	0.008	-0.062	-0.247	0.211	0.059
(6)	0.032	0.023	0.022	0.031	0.018	0.705	0.348	0.234	0.558	0.428	0.312	0.038	-0.023	-0.250	0.192	-0.015
(7)	0.028	0.034	0.036	0.049	0.038	0.036	0.671	0.575	0.196	0.402	0.205	0.181	0.209	0.036	-0.318	-0.398
(8)	0.031	0.036	0.042	0.054	0.045	0.040	0.030	0.810	0.123	0.355	0.178	0.294	0.305	0.298	-0.514	-0.601
(9)	0.036	0.030	0.028	0.034	0.027	0.028	0.042	0.045	0.800	0.270	0.416	-0.057	-0.068	-0.175	-0.067	-0.028
(10)	0.036	0.036	0.032	0.049	0.036	0.032	0.035	0.037	0.038	0.873	0.177	-0.055	0.203	-0.185	-0.093	-0.456
(11)	0.045	0.043	0.057	0.074	0.047	0.045	0.051	0.045	0.041	0.049	0.920	0.108	0.045	0.094	-0.002	0.010
(12)	0.039	0.041	0.040	0.060	0.043	0.046	0.043	0.047	0.049	0.045	0.067	0.724	0.104	0.158	-0.096	0.077
(13)	0.045	0.042	0.048	0.055	0.045	0.048	0.043	0.042	0.048	0.041	0.056	0.051	0.722	0.143	-0.198	-0.253
(14)	0.040	0.039	0.041	0.054	0.039	0.037	0.041	0.039	0.040	0.038	0.054	0.043	0.042	0.835	-0.320	-0.254
(15)	0.037	0.041	0.046	0.054	0.039	0.039	0.037	0.034	0.041	0.041	0.054	0.048	0.040	0.037	0.700	0.445
(16)	0.037	0.038	0.039	0.054	0.041	0.039	0.035	0.027	0.040	0.031	0.054	0.045	0.040	0.037	0.033	0.913

requirements of them. *Popularity* (A, 0.56; B, 0.54) indicates another aspect of the situation, their adjustment to their fellows' requirements of them. *Cheerfulness* (A, 0.59; B, 0.63) should reflect the individual's measure of adjustment to his own requirements, while *fear* (A, -0.32; B, -0.47) suggests inability to meet the situation. In both analyses there are substantial weightings for *intelligence* (A, 0.51; B, 0.47) and *examination results* (A, 0.66; B, 0.55) which, together with the traits suggesting intellectual quality, *quickness of intelligence* (A, 0.84; B, 0.79), *mental activity* (A, 0.81; B, 0.72), with their obvious bearing on successful achievement in school tasks, may be viewed as but other facets of successful adjustment, the mark of personal adequacy. The saturations for *bodily activity* (A, 0.46; B, 0.62), if this be taken as indicating the 'healthy body', is in line with this general emphasis on the 'healthy mind'.

Interpreting in this way means taking the estimates at their face value, i.e. as really measuring the quality whose name they bear. To do so is to neglect the evidence for what Thorndike has called the 'halo effect' in ratings. Speaking of rating judgements he says: "Their ratings were apparently affected by a marked tendency to think of the person in general as being rather good or rather inferior and to colour their judgements of the qualities by this general feeling" (12, p. 25). It is not always clear, though, just what is meant by 'halo' as used by different writers. It may, for example, involve the following:

(1) A tendency to prefer certain individuals to others and to rate the preferred individuals highly in desirable traits.

(2) A tendency to rate in terms of a certain general attitude to the qualities themselves, as Webb found that *sense of humour* had for his prefects as raters a high correlation with all the intellectual qualities, but with the lecturers' estimates the correlation between this trait and the intellectual traits was practically zero (-0.04).

(3) A tendency to judge all-round personal worth (as evaluated, of course, by the judges) rather than to discriminate in terms of particular qualities.

With regard to (1), it will be suggested that something of this sort, a kind of 'consolation prize' attitude, is operative in a subsequent factor.

As for (2), this interpretation is strongly suggested. Eight of the ten estimates by the teachers are among the highest factor loadings in A and B and the effect of rotation as shown in C is markedly to emphasize this 'scholastic halo' in that all the intellectual estimates are increased in saturation with *bodily activity* reduced to twelfth place and *fear* reduced to zero.

Again, the D analysis of data, from which the influence of the variables *intelligence* and *examination results* have been removed by the technique of partial correlation, shows little evidence of the scholastic colouring in the first factor, and as rotated in E there is clearly no such influence.

It might be concluded that the first factor in analyses A, B and C is the general intelligence factor 'g'. This appears clearly untenable. Can the presence in the factor pattern of traits such as *common sense*, *cheerfulness* and *popularity*, which all have saturations above 0.5 in A and B and above 0.3 in C, be explained simply in terms of general cognitive ability? A number of studies have shown that more than 'g' is involved in scholastic achievement. Here, as so often happens, the effect of partial correlation technique is to partial out too much. Nevertheless, the fact that no factor appears in D and E with any marked resemblance to the first factor in A, B and C, does strongly support the emphasis on the scholastic colouring of the first factor.

The first factor indicates, therefore, the influence of a halo effect of the second kind we have distinguished, a tendency to rate in terms of a general attitude to the qualities. This does not preclude the interpretation of the halo in the third sense as a tendency to judge all-round personal worth rather than specific qualities. Raters can only judge according to their opportunities to observe and in terms of the significance the traits have for them. This need not mean that their judgements are nothing but an expression of their prejudices. It does not appear legitimate to describe halo effect as a constant error in the sense that it is nothing but a disturbance factor in judgement and cannot signify anything judged. After all, the raters did make a serious effort to discriminate between the boys in respect to personal qualities. In effect, this halo would appear to be a global or 'gestalt' approach to the estimation of personal qualities, i.e. a reaction to the whole person rather than a piecing together of separate impressions. We should remember, too, that for traits for which objective measures are available, e.g. cognitive abilities, correlation of 'desirable' traits is the rule; 'g', however criticized, has not yet been described as 'a constant error'.

The writer would suggest, then, that factor I indicates the first global approach in the judgement of personal qualities, as they appear to the raters in terms of the scholastic situation in which the qualities are displayed, and, of course, within the limitations of their own scholastic bias.

Factor II. All the five analyses agree in contrasting with positive saturations a group of traits suggesting a forceful sthenic quality as against *fear* and *self-consciousness* with negative saturations. One marked discrepancy stands out. In A and B a group of scholastic traits, *continuity of interest* (A, -0.44 ; B, -0.59), *examination results* (A, -0.35 ; B, -0.50), *perseverance* (A, -0.32 ; B, -0.50), *mental activity* (A, -0.29 ; B, -0.50), appear together with *fear* and *self-consciousness* on the negative side. These appear on the positive side in the first factor of D: *mental activity* (0.60), *perseverance* (0.44) and *continuity of interest* (0.38), but after rotation appear again on the negative side in the third factor for E, with saturations -0.33 , -0.15 and -0.24 respectively.

The result of rotation has been to emphasize the influence of these scholastic variables in the first factor and to eliminate their influence from the second. This, of course, is to be expected from a procedure of maximizing the number of zero saturations. Thus, the rotation offers an explanation in terms of group factors, whereas the unrotated factors give the first factor as a general average which the second factor dichotomizes.

In such a dichotomy the presence of the scholastic group of traits on the negative side is quite intelligible if we resist the temptation to take trait names at their face value, and remember the source and conditions of their rating. It is not perseverance in general, or continuity of interest in general that we are concerned with here, but these traits as rated by teachers under the conditions governing observation of behaviour in the classroom, i.e. it is perseverance, or continuity of interest in school work, which as reflecting a submissiveness to school requirements are contrasted with the more overt assertive traits.

The peculiarity of these traits occurring with positive values in the first factor for C which otherwise is generally sthenic is due to the fact that the factor still shows something of the global approach discussed in the preceding section. Again, the effect of rotation in E is to eliminate the scholastic traits and to emphasize the sthenic qualities.

Clearly enough, then, with some variation as to detail, the second factor groups quali-

ties of a forceful assertive kind. It may be identified with the factors described by Garnett, Cattell, Studman, Burt and Reyburn & Taylor ((6), (5), (11), (3) and (9)).

*Factor III.*¹ The third factor in A and B is doubly bipolar, that is, the group of sthenic qualities from the second factor is divided into those with positive and those with negative saturations in the third factor, and the non-sthenic group are similarly subdivided.

Of the sthenic qualities we now have a subdivision by A into *popularity* (0.58) and *cheerfulness* (0.11), as against *excitability* (−0.50) and *anger* (−0.48). The non-sthenic group shows an antithesis between *common sense*, *perseverance*, *self-consciousness*, all, however, below 0.2, as against *fear* (−0.35), *mental activity* (−0.29), *intelligence* (−0.20).

In B appears a similar subdivision: sthenic qualities into *cheerfulness* (0.22) as against *anger* (−0.35) and *excitability* (−0.21); non-sthenic into *popularity* (0.62), *perseverance* (0.22), *self-consciousness* (0.20), as against *fear* (−0.40), *mental activity* (−0.27) and *intelligence* (−0.26).

Analysis C contrasts *popularity* (0.62), *perseverance* (0.45), *continuity of interest* (0.39), *common sense* (0.30), *self-consciousness* (0.44), against *anger* (−0.55). Thus, except for *cheerfulness*, all the values from the positive sides of the dichotomies are brought together, but of the negative values only that for *anger* reappears after rotation.

The saturations for *perseverance* and *continuity of interest* in C are supported in D, factor II, 0.59 and 0.69 respectively and in E, factor I, 0.74 and 0.73. This suggests that the factor corresponds to Webb's 'w' described by him as indicating 'persistence of motives—consistency of action resulting from deliberate volition or will' (15), p. 60).

The substantial weightings for *popularity* in all the analyses except D suggest caution in accepting this interpretation. Further, the contrasted values of *anger*, appearing in all five analyses and *fear*, again in all except D, suggest that the contrasted grouping of these reflects the opposite of the quality represented by the saturation for *popularity*. The latter traits cannot justifiably be taken at their face value as, in effect, they were so taken in discussing the second factor.

Applying the principle of referring ratings to their source, we note that these assessments were secured by class ballot of the boys, as also was *popularity*. The suggestion is that their presence in the third factor pattern together with *popularity* represents a tendency on the part of the boys to ascribe these undesirable qualities to those they disliked.

A further difficulty in interpretation lies in the saturation for self-consciousness, which, though slight in A (0.12), B (0.20) and E (0.27), is substantial in C (0.44), and second in order of magnitude for D (0.62). This trait was described in the rating schedule:

+3	−3
Easily embarrassed to an uncomfortable degree. Extreme bashfulness	Perfect self-confidence—'cheekiness'

It is suggested that 'cheekiness' was the dominant word in inducing a tendency on the part of the teachers to rate low on this trait those whose behaviour infringed school decorum and scholastic dignity. In this connexion, Wickman's conclusion is interesting: "The characteristics of ideal behaviour, as defined by teachers, tends in the direction of

¹ In this and the following factors the reduced size of the saturations makes for some difficulty in interpretation. No trait is cited as evidence unless it appears with a saturation 0.2 or above in at least two of the analyses. This is approximately five times the average of the probable errors for any of the variables.

complete submission, order, routine, the abstinence from any aggressive social tendencies that run counter to the teacher's standard of classroom order" (16), p. 25).

Now, *continuity of interest, common sense, perseverance* are all qualities that teachers would approve. Their presence in this factor pattern together with *popularity* and *self-consciousness* and the contrast between these and *anger* and *fear*, becomes readily intelligible if we see the general lines of this pattern as a halo effect of the first kind distinguished earlier, a tendency to ascribe desirable traits to those liked and undesirable to those disliked.¹

If this conclusion is warranted it is of considerable importance. Cattell (5), Studman (11), and Reyburn & Taylor (9) have all reported a factor which they identify with Webb's 'w' and for the most part interpret on similar lines. Burt (3) describes his factor of 'general emotionality' as the converse of 'w'. Both Aveling (2) and Spearman (10) adduce Webb's work as evidence for general theoretical arguments on the psychology of volition. In these circumstances some further argument and a closer scrutiny of Webb's data and procedure are called for. Webb analysed by the Spearman technique the intercorrelations for 43 traits as rated for teachers' college students by their prefects. For a group of boys ratings by the masters were similarly analysed. After extraction of the 'g' factor, Webb found a second factor of wide generality shown in the qualities classified as "(1) moral qualities and the deeper social virtues; (2) persistence of motives"; while the qualities where the factor operated negatively were grouped as "(3) instability of emotions: (4) the lighter side of sociality". Webb concluded: "We therefore venture to suggest (tentatively and with much desire for further evidence) that the nature of the second factor, whose generality would appear to extend so widely in character, is in some close relation to 'persistence of motives'. This conception may be understood to mean *consistency of action resulting from deliberate volition or will*" (15), p. 59).

Two major criticisms arise. In the first place, a reference to his monograph shows that Webb's procedure was markedly such as permitted halo tendencies to operate. The following points are worth noticing:

(1) The prefects were required to study the characters of their subjects in a "quite general way" and to write a "*general character sketch*" of each before proceeding to the rating of the particular traits.

(2) In all, the prefects rated 46 traits. There is no instruction quoted in the monograph which would prescribe any interval between the rating of the different traits nor preclude the rating of each individual on all the traits before passing on to the next individual.

In these circumstances, so obviously conducive to halo, the interpretation of factors in terms of particular trait names is surely precarious.

In the second place, Webb's conclusion is an example of a tendency, rather prevalent in studies based on ratings, to give to trait names a more general significance than the conditions of rating warrant. It is not perseverance in a course of conduct in general but the estimate of this obtained under the special conditions of the study. These conditions were plainly such as would emphasize scholastic values. The prefects were in training for the teaching profession; the masters were engaged in it. In effect, the quali-

¹ The apparent discrepancy in A and B of negative values for *intelligence* (-0.20, -0.26) and *mental activity* (-0.29, -0.27) may indicate a quality of self-sufficiency in these which is contrasted with the qualities making for 'likeableness'.

ties exemplifying the 'w' factor clearly are all qualities either, on the positive side deemed desirable, or, on the negative side, deemed undesirable in a scholastic situation.

It does not follow that 'w' indicates a mere preference. The fact indicated by the trait reliabilities that judges tend to agree in their preferences shows that such judgements have some relationship to the nature of the personalities judged, i.e. there is something to be preferred. This argument is strengthened by the evidence of the present study where the estimates are for the most part based on an average of three or four judgements as against Webb's two and, further, by the agreement between the teacher's preferences and the boys' preferences (e.g. 'popularity'). The conclusion is that, because the preferences of different judges having different points of contact with the subjects show a common ground, these preferences indicate something to be preferred, a certain personal quality which tends to make the individual liked or approved by others. What this quality is, it appears to the writer, it is impossible to say with any degree of definiteness if the evidence is confined to that of factorial studies of ratings on traits. It may be a certain stability or consistency of character associated with emotional control, as the interpretations of 'w' suggest. Alternatively, it may be a certain pliability or amenability, a willingness to please. The attempt to specify with any degree of finality in terms of particular trait names, however insidious the temptation, should be resisted.

In so far as this analysis and the argument as to interpretation are justified, the third factor appears as a quality in the individual which occasions a favourable attitude on the part of his fellows, and that, it is maintained, is what 'w' really means.

Factor IV. The effect of the series of dichotomies in A and B is somewhat difficult to follow because of the number of low saturations. Both contrast *excitability* (0.58, 0.73) with *anger* (-0.25, -0.18) and though the loadings for A are slight, there is agreement in contrasting *fear* (0.10, 0.23) with *intelligence* (-0.47, -0.26) and *examination results* (-0.23, -0.24). Analysis B associates *fear* with *initiative* (0.17) and *quickness* (0.15), and a similar relationship is shown in A though the values are too slight to be stressed.

The relationship becomes clear as a result of rotation in C:

Excitability (-0.62), *fear* (-0.61) are set over against *popularity* (0.31), *anger* (0.30), *common sense* (0.24), *examination results* (0.19) and *intelligence* (0.18). Again factor III in D contrasts *fear* (0.43) and *excitability* (0.47) with *cheerfulness* (-0.17), and *mental activity* (0.52), *quickness of intelligence* (0.28) with *popularity* (-0.54) and *common sense* (-0.21). Rotated in analysis E, factor II, we have *initiative* (0.79), *quickness of intelligence* (0.63), *bodily activity* (0.54), *excitability* (0.53) with the only substantial negative value *self-consciousness* (-0.38).

Despite some discrepancies, the general picture clearly enough indicates a contrast between qualities of an unrepressed, excitable, irritable or distractable character as against those suggesting stability, placidity or perhaps inertia.

Reyburn & Taylor⁽⁹⁾, from a re-analysis of Webb's data, report a factor which, though they identify it with Charity as described in Corinthians xiii. 4-7, appears to correspond with that discussed here. "The third factor is defined at the positive end by four traits with loads in the neighbourhood of 0.5. These are *tact*, *recovery from anger*, *readiness to accept the sentiments of one's associates*, and *kindness on principle*. *Conscientiousness* and *trustworthiness* lie between 0.3 and 0.4, and *impulsive kindness* with a load of 0.24 is also significant. At the negative end *readiness to become angry* has a load of over 0.8, and the traits, *occasional extreme anger*, and *eagerness for admiration*, are in the neighbourhood

of 0.6. The loads of *fondness for large social gatherings* and *bodily activity in pursuit of pleasure* are probably also significant" (9), pp. 162-3).

To describe such a pattern as the above by a term suggesting positive benevolence is, again, to attach undue importance to the actual names of the traits, particularly when these are of qualities so elusive as moral qualities. More cautiously, the picture appears quite akin to the factor discussed here as a contrast between excitability and placidity.

One other point calls for comment. There is a certain amount of resemblance between the fourth factor and the second factor in this study, especially in analysis E, factors II and III. The distinguishing feature would appear to be a certain forcefulness, making one's presence felt, characteristic of the 'sthenic' factor, as opposed to a certain irritability or restlessness, not so much making one's presence felt as attracting notice, underlying the grouping of traits in the 'excitability' factor.

Cattell describes his second factor, generally sthenic in nature, as 'surgent', meaning by surgent "a ready leaping up of ideas and impulses". He supports this interpretation by the relationship shown between the rating assessments for the factor and a group of fluency tests. This would appear to involve a confusion of the 'sthenic' factor and the 'excitability' factor.

By the Spearman technique, after extraction of 'g' and 'w', he was able to show a grouping of traits and fluency tests for which tetrad differences indicated a further factor. It is a reasonable assumption, supported by Reyburn & Taylor's further analysis of Webb's data, that this residual relationship is itself complex and may involve a further basis of distinction along the lines here suggested. The present writer (8) offers some further evidence for this. He found a grouping of self estimates on Burt's 'o' (optimistic type) (3) correlating positively with scores on two fluency tests and negatively with scores on a questionnaire indicating 'self-sufficiency'. This factor was distinct from one which was identified with the sthenic factor. Incidentally, Burt's third factor from the analysis of eleven traits from McDougall's list of propensities, described by him as 'euphoria' as shown in a contrast between the pleasant and the unpleasant emotions, may also be described as contrasting irritability or excitability as against placidity. The terms 'euphoria', 'optimism' or 'cheerfulness' may involve an unwarranted implication of a sthenic quality.

VII. CONCLUSION

Intercorrelations from the ratings or assessments on sixteen personal qualities may be classified as involving:

I. A factor reflecting the raters' judgement of general personal adequacy, but in this context mainly emphasizing scholastic attitude or ability.

II. A factor implying a sthenic, assertive quality.

III. A factor implying certain aspects of the individual which makes for approval within his group.

IV. A factor described as contrasting excitability with placidity.

These factors are discussed in their relationship to factors from other studies and some criticisms are advanced with regard to the interpretation of the latter.

Subject to these considerations, factor II may be identified with 'w', factor III with 'c' and factor IV with Reyburn & Taylor's third factor.

Five variants of factorial analyses show, in general, considerable agreement.

On the whole, a method of rotation makes for clarification, but unrotated bipolar analyses appear far from giving results that are 'psychologically meaningless'.

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FRUSTRATION TYPES AMONG MENTAL DEFECTIVE JUVENILE DELINQUENTS

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(1) *Types of reaction to frustration* (pp. 29–30). (2) *Classification into F types* (pp. 30–31). (3) *Intelligence of the F types* (p. 31). (4) *Emotional stability of the F types* (p. 31). (5) *Cattell's rating scale of neurotic characters* (pp. 31–32). (6) *Conclusions* (p. 32). *References* (p. 32).

(1) TYPES OF REACTION TO FRUSTRATION

The procrustean weakness of any attempt to classify the human personality is too obvious to require much comment. Practical value alone can justify it. It is believed that this criterion may be met by Rosenzweig's types of reaction to frustration. Frustration is defined by Mowrer⁽³⁾, writing in a symposium with Rosenzweig, as "a state of affairs against which the affected individual's energies are more or less strongly mobilized, which he seeks to eliminate or, if possible, entirely to avoid. If happiness may fairly be said to represent the ultimate goal of all human endeavour, frustration is its antithesis." This tends to treat frustration-aggression as a unit. It is, indeed, considered in *Frustration and Aggression* to have a universal causal relation. There an independent definition of frustration is given as "that condition which exists when a goal-response suffers interference" (2), p. 11).

Working with this definition, 45 mental defective juvenile delinquents were divided into three categories¹ in order to discover whether a characteristic pattern of reaction does exist. Rosenzweig's warning was, of course, emphasized with all the raters. "It should be made clear that this scheme refers primarily to types of reaction and not to types of personality. Any given individual may exemplify all of these sorts of reaction on different occasions and may even combine two or all of them at some time. Whether persons have a characteristic way of subjective reaction to frustration which they constantly display, at least in a given kind of situation, is one of the three problems to be investigated" ((4), p. 587).

"*Extrapunitive*: when the individual tends to blame the external world, reacts with anger and hostility, and psychologically defends himself by what the psycho-analyst describes as the mechanism of projection. An ego which fears blaming itself thus gains security by blaming others instead. The most striking examples of this type of reaction to frustration are found among paranoid patients.

"*Intropunitive*: when the individual tends to blame himself, reacts with feelings of remorse and guilt and employs the mechanisms of defence called by the analyst displacement, isolation and undoing. An ego which fears blaming others thus gains security by blaming itself instead. Classical examples of this type of reaction are found among obsessional and compulsive neurotics.

"*Impunitive*: when the individual tends to pass over frustration situations lightly, as if they represented unavoidable accidents for which no one was to blame. Here the motive of conciliation predominates and the commonest mechanisms of defence are self-

¹ I am indebted to the Medical Superintendent, Dr J. T. Curran, for permission to carry out this investigation and to Mrs Curzon and Messrs J. Doyle, A. Dunne and C. Sproul for assisting with the ratings.

deception and repression. An ego which fears loss of love thus protects itself from alienation by refusing to blame anyone or anything, emphasizing the inevitable and the excusable instead. Examples of this type of reaction are most strikingly found among hysterical patients" (5) p. 157).

It must be recognized that no individual reacts invariably in one way to frustration situations; but it was thought that one pattern might predominate—the more so in the present subjects, since they are young, in the main feeble-minded, and relatively uncomplex.

It was hoped that if such a typology could be established, it might give a lead in at least four directions:

(1) *In ascertaining the underlying motives of the delinquent behaviour.* What causes these reaction patterns to become established? Why are these subjects more intolerant of frustration? Does each type, for example, steal for a reason associated only with that type?

(2) *Therapeutic treatment.* If, as Rosenzweig suggests, these types are closely associated with patterns which may lead to a specific psychoneurosis, the establishment and treatment of these types will have all the advantages of the treatment of psychoneurosis before it is too firmly established.

(3) *Institutional treatment.* Where large numbers are involved there is a tendency to apply uniform treatment in the matter of discipline, routine jobs, etc. A simple threefold approach in the light of this theory would be both practicable and less rigidly determined.

(4) *Vocational guidance.* It may be that each type will be more specifically adaptable to certain broad types of employment.

These usages of this particular typology are put forward merely as suggestions and will not receive treatment in the present paper.

(2) CLASSIFICATION INTO *F* TYPES

The opportunity for direct observation of subjects in frustration situations was good. The ratings were based partly on the accumulation of such evidence as the following:

Kenneth, on being put to bed, cursed and screamed for an hour and a half, threatened to get the writer hanged, to break windows and finally invoked the deity to punish other members of the staff for hurting little boys (which they had not so much as offered to do). This was considered extrapunitive behaviour.

George, who had a record of sexual offences, discussed them freely without apparent shame and, in fact, joked about the whole matter without making any judgement either of himself or other parties involved. Being the witness of an incestuous relationship provoked no condemnation from him. This was presumed to be impunitive behaviour.

When admonished by a member of the staff, Dick almost invariably made certain that the incident did not end there. He challenged the staff to put him to bed, which is the final punishment, and when threatened with it said he didn't care. Eventually he was sent to bed. He then settled down quite contentedly, attempting neither to blame the staff responsible nor to excuse himself. He had been punished and, for the moment, apparently felt secure. This is recorded as an intropunitive reaction.

Where a subject showed a marked preponderance of any one of these types of reaction he was classified in that group.

Rosenzweig's description of the types of reaction to frustration was presented to a colleague (with 10 months' experience, but no psychological training) and he grouped the subjects into extrapunitives, 17; intropunitives, 10; impunitives, 18. The writer estimated 16, 9, 20 respectively. There was complete agreement in 39 of the 45 cases.

Additional ratings were made by two teachers, one of 19 subjects and the other of 36. These gave the following results (despite the fact that the subjects were seen under different conditions):

Complete agreement (mostly 3/3, sometimes 4/4)	25
High agreement (at least 2/3, often 3/4)	14
Doubtful agreement (2/4, where remaining 2 differed)	2
Disagreement	4

Agreement was reached about the last group after the rather unsatisfactory method of discussion, but their omission would not radically alter the results.

Taking a composite rating for the 45 subjects, the grouping was as follows:

Extrapunitives	16	(35½ %)
Intropunitives	10	(22 %)
Impunitives	19	(42½ %)

It seems apparent from the agreement between the four raters that one pattern of reaction is outstanding and easily discernible in the case of these subjects.

(3) INTELLIGENCE OF THE *F* TYPES

The subjects were given Cattell's Scale I A. The mean I.Q. scores for each group were as follows (six were omitted as their results were unreliable):

Extrapunitives	75.4 ± 1.709 (s.d. 9.12)
Intropunitives	72.9 ± 3.322 (s.d. 13.94)
Impunitives	57.4 ± 1.321 (s.d. 8.11)

We may conclude that in this group of mental defective juvenile delinquents, impunitives tend to be the least intelligent.

(4) EMOTIONAL STABILITY OF THE *F* TYPES

A five-point rating scale from exceptionally unstable (5) to stable (1) was used and gave the following means: extrapunitive, 3.44; intropunitive, 3.40; impunitive, 2.79.

Cattell's rating on psychoneurotic symptoms was done by three raters. The results for each syndrome were added and then reduced to five classes. These results yielded the following means: extrapunitive, 3.56; intropunitive, 3.60; impunitive, 2.63.

These results closely paralleled the direct rating and suggest that in this group the impunitives tend to be the least unstable. The results are not, however, statistically significant.

(5) CATTELL'S RATING SCALE OF NEUROTIC CHARACTERS

Three raters, two unaware of the *F* type classification, scored this rating scale (1, pp. 230-4) with the object of discovering which syndrome was most applicable to each subject. There was complete agreement as to the dominant syndrome in 62 % of the cases; agreement between two out of three in 31 % and disagreement in 7 %. (A fourth rater decided these three disagreements.)

The following results were obtained:

Extrapunitives: 11 out of 16 were paranoid; whereas of the remaining 29, only 5 were paranoid.

Intropunitives: 7 out of 10 were obsessional; whereas of the remaining 35, only 1 was obsessional.

Impunitives: 17 out of 19 were hysterics; whereas of the remaining 26, only 4 were hysterics. This suggests that, in this instance, Rosenzweig's hypothesis was substantially upheld.

The mean I.Q.'s for the groups were: paranoid, 69.96; obsessional, 70.41; hysteric 62.44. None of the differences was at all significant; but, as far as it goes, the result supports the belief that hysterics tend to be less intelligent than the other clinical types.

(6) CONCLUSIONS

1. In this group of mental defective juvenile delinquents it was possible to reach substantial agreement as to the dominant type of reaction to frustration of each individual. Of the 45 subjects, 35½ % were classified as extrapunitive, 22 % as intropunitive and 42½ % as impunitive.

2. The mean I.Q.'s for the group were: extrapunitive, 75.4 ± 1.709 (s.d. 9.12); intro-punitive, 72.9 ± 3.322 (s.d. 13.94); impunitive, 57.4 ± 1.321 (s.d. 8.11).

3. The mean emotional stability scores were:

	Directing rating	Cattell rating scale
Extrapunitives	3.44	3.56
Intropunitives	3.40	3.60
Impunitives	2.79	2.63

4. For the group studied the extrapunitive-paranoid, intropunitive-obsessional and impunitive-hysteric associations were substantially confirmed.

5. The mean I.Q.'s for the psychoneurotic groups showed no significant differences; but the results tended to support the belief that hysterical subjects are rather less intelligent than the other clinical types.

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AN INQUIRY INTO THE ATTITUDES OF ADULTS TOWARDS PROPERTY IN A LANCASHIRE URBAN AREA

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I. *Introduction* (p. 33). II. *The notion of property* (pp. 33-34). III. *The location* (pp. 34-35). IV. *The method* (pp. 35-36). V. *Results* (pp. 36-41). VI. *Conclusions* (pp. 41-42). *References* (p. 42).

I. INTRODUCTION

This paper is an attempt to record some results of an inquiry into the attitudes of adults towards property. A search for written material concerning the psychological aspects of the theory of property is an almost barren task. The only comprehensive book on the subject is Ernest Beaglehole's *Property: A Study in Social Psychology*⁽¹⁾.

The study of property has most often been approached from either a legal, or an historical, or a philosophical point of view. In most text-books of psychology it is seldom given so much as a paragraph to itself: rarely is it mentioned in the index. If it is mentioned at all, it is most often discovered in a chapter on 'Instincts'.

A large proportion of psychologists appear to attribute a man's desire to possess what he has not or to hold on to what he has to an acquisitive instinct. Much space is taken up in their books in the attempt to show a correlation between the acquisitive behaviour of insects, birds and rodents and the desire for personal property in man. It is significant of the strength and prevalence of such an attitude that Beaglehole had to use one-third of his script to denounce this attitude before bringing evidence that would not "justify the postulation of any such instinct as an adequate explanation for such behaviour" (1), p. 254).¹

A fuller analysis of this inquiry and a deeper penetration into the factors involved in the psychology of property, may reveal that the desire for the possession of private property is, for the greater part, the outgrowth of social environment and social tradition.

II. THE NOTION OF PROPERTY

The word 'property', like the Middle English 'proprete' and the Old French 'propriete', is the derivative of the Latin 'proprietas', the nominative of which is 'proprietas', which itself is formed from 'proprius', meaning 'one's own'. Scholars of the classics suggest that 'proprius' may have been derived from the word 'prope', meaning 'near'.² In post-Augustan times 'proprietas' was extended to ownership and the rights of possession.

The early lawyers appear to have had some difficulty in distinguishing between 'property', 'ownership' and 'possession'. They seem to have considered only the tangible object, and so we find them speaking of wrongful possession as having the 'property', and the ousted owner 'the right to the property'. To-day, however, 'property' means the object, real or personal, and 'possession' confers proprietary rights and not property.

If I am the owner of a spade it can be said to be my property. I can use it to dig holes in my garden or, if I so desire, to ornament the top of my grand piano. I cannot, however, use it to break the windows of my next door neighbour's house. A stranger cannot,

¹ For an early discussion of this see W. H. Rivers(8).

² Some modern scholars, however, appear to doubt the validity of this suggestion.

without my permission, remove it from my tool-shed. But I can lend it to whomsoever I desire, free or for rent, for as long or as short a period as I may determine.

So that to possess a certain article of property is not so much concerned with the material object as with the *rights* which I have controlling the movements and uses of that object. As Sir John Salmond states in his *Jurisprudence*, "In its widest sense, property includes all a person's legal rights, of whatever description. A man's property is all that is his in law." "The owner of a material object is he who owns a right to the aggregate of its uses" (2), p. 443).

What, then, are these rights which determine whether an object is or is not the property of an individual? In the first place others must agree that he has sole control of the object. Though this is a legal condition, it is *prima facie* a sociological condition. No thing which I possess could be called my property if others did not respect and accept my rights over it. Property is a social arrangement of mutualities.

Secondly, the rights over an article of property must be permanent in those things which have permanence. The law says: "No person having merely a temporary right to the use of a thing can be the owner of the thing, however general that right may be while it lasts" (2), p. 447). In other words, when I leave my house to take a vacation no neighbour, relative or stranger has the right to enter or use the house. It is in 'vacant possession'. My rights over the property hold even *in absentia*.

Thirdly, to possess an article of property the owner must have exclusive rights and control, though not necessarily complete control. If that control is shared with another it becomes joint property or common property. If anyone at all can use it, as they like and when they like, it is not property in the strict sense at all. As Prof. Hobson states: "Property may be private, joint or common, but it must vest in some person or persons, and it must be exclusive of other persons" (3), p. 6). That is to say, exclusive of persons other than those enjoying the ownership and possession.

Property, therefore, does not consist of resources at all. It is the right of using the resources and the way in which they may be used. The development of such rights and the interpretation within the English culture pattern is, therefore, an important aspect of the notion of property and has been examined in the thesis of which this paper is a partial summary (4).

III. THE LOCATION

The investigation was carried out in the adjacent villages of Edenfield and Stubbins, which constitute the North Ward of the Urban District of Ramsbottom. The area lies fifteen miles north of Manchester, at the southern termination of the Rossendale Valley.

Almost all the inhabitants have their employment in the five mills, which are spread out along the banks and tributaries of the River Irwell. The valley has, since the industrial revolution, been a centre of the cotton-printing trade. Other industries, however, claim a proportion of the people. These are mills manufacturing cotton fabrics, paper and allied cotton goods.

The histogram of rateable values reveals that more than half the people live in houses between £3 and £10 annual rateable value; the next large proportion in houses between £11 and £20; and the remainder in houses between £21 and £71 annual rateable value. The houses in the latter category are almost all inhabited by mill-owners or executive officers of the mills.

The area was chosen for the investigation because the 3000 people in the two villages were typical of residents in similar industrial areas of Lancashire. The fact that the villages are, to some extent, still isolated from the influence of the larger towns was also considered. Geographical and 'town-planning' features dominate the group psychology of the peoples; thus no precise understanding of the 'Lancashire mind' is possible without considering the effects of the complete domination of the mill over the entire lives of the people.

IV. THE METHOD

Three attitudes towards property—lending, damaging and stealing—were investigated. A sample of 250 persons of both sexes, between the ages of 21 and 70, was chosen in direct proportion to the total population. Each person was asked, in an interview, to arrange in order of seriousness from first to last twenty or twenty-one cards under each of the three headings. Each card bore the name of an article which could be classed as either personal or company or communal property. As each card was placed in position, the subject was permitted to give his reasons for his decision, or to ask any questions about the experiment. A record was kept of the judgements of the subject, his age, sex, position in family, rateable value of house and occupation. His questions and statements were recorded.

(a) *Lending*

The instruction card to this section read as follows:

Each card bears the name of an item which you could LEND. You are asked to arrange the cards in order of seriousness from first to last. At one end will be the card bearing the name of the article which you would MOST object to lending; at the other end will be the card bearing the name of the article you would LEAST object to lending.

The cards were marked as follows:

Clothing

1. Underwear (vests, etc.).
2. Overwear (dress, suit, etc.).
3. Hat.
4. Boots or shoes.
5. Scarf or tie.
6. Stockings.

Hygiene

7. Handkerchief.
8. Pipe or cigarette holder.
9. Toothbrush.
10. Comb or hairbrush.

Private purchases

11. Books (for study or work).
12. Books (for general reading).
13. Watch.
14. Fountain pen.

Sentimental possessions

15. Locketts.
16. Private letters.
17. Presents.
18. Diary.
19. Bicycle or car.
20. Loose money.

(b) *Damaging*

The instruction card to this section read as follows:

Each card bears the name of an item which could be DAMAGED. You are asked to arrange the cards in order of seriousness from first to last. At one end will be the card bearing the name of the article you would MOST condemn a person for damaging; at the other end will be the card bearing the name of the article you would LEAST condemn a person for damaging.

The cards were marked as follows:

Club property

1. Trophies, equipment, etc.
2. External and internal fittings.

Company property

3. Wall, machinery, etc.

Transport

4. Bicycle or car.

Town Council property

5. Buses, seats, lamps, etc.

Shop property

6. Private shop.
7. Chain store.

Farm property

8. Fields, produce, etc.
9. Equipment.
10. Livestock.

Personal property

11. Neighbour's.
12. Own.

House property

13. Stranger's.
14. Friend's.
15. Own.
16. 'Blitzed.'
17. Dead person's.
18. Poor person's.
19. Empty.
20. Wealthy person's.
21. Government war property.

(c) *Stealing*

The instruction card for this section read as follows:

Each card bears the name of an item that can be STOLEN. You are asked to arrange the cards in order of seriousness from first to last. At one end will be the card bearing the name of the article you would MOST condemn a person for stealing; at the other end will be the card bearing the name of the article you would LEAST condemn a person for stealing.

The cards were marked as follows:

Shop property

1. Private shop.
2. Chain store.

Company property

3. Scrap or waste cloth, wood, etc.
4. Manufactured goods.

House property

5. Wealthy person's.
6. Stranger's.
7. Friend's.
8. Dead person's.
9. Poor person's.
10. Empty.
11. 'Blitzed'.

Farm property

12. Equipment, tools, etc.
13. Livestock, produce.

Personal property

14. Sentimental possessions.
15. Clothing.
16. Bicycle or car.
17. Loose money.

Club property

18. Trophies, equipment, etc.

Town Council property

19. Discarded articles.
20. Roadside articles and equipment.

Each set of cards was printed on a different coloured paper to avoid mixing the cards and to enforce the fact that the subject was considering a different operation with each set. No time limit was given for the completion of the test, and every effort was made to maintain rapport with the subject.

V. RESULTS

The results of the investigation appear to substantiate William James's statement that "a man's Self is the sum total of all that he can call his, not only his body, and his psychic powers, but his clothes and his house, his wife and children, his ancestors and friends, his reputation and works, his land and horses and yacht and bank account" ((5), pp. 291-2)

The objects of this 'ego-identification' appear commonly to characterize the residents of the locality investigated. There is a local pattern of choice. The works of Rivers, Malinowski, Benedict, Mead and others point to patterns of choice amongst other peoples (6, 7, 9, 10, 11, 12). That the items chosen in these patterns are different, sometimes startlingly so, indicates that even if an acquisitive instinct be present in man, it is preponderantly shaped and coloured by national and local culture.

Damaging

In the ranking of the cards dealing with damage to property, prime importance was given to house property. That this form of property should be so highly valued by the villager (despite the experiences of the war which tend to alter the promise of permanence of such property) is understood when it is known that 'bricks and mortar' constitute the highest form of wealth to the mill worker in this area, for, in the early days of cotton printing, wages were small and pensions unknown. Families struggled to provide for old age. The weekly house rent was a continuous and considerable drain on small savings and income. If a family possessed a house of its own, however, old age lost much of its terror. Children were instructed in this wisdom. They were taught that the possession of a house meant independence—a great treasure to the people of Rossendale, the scene of many struggles for independence by the Scottish settlers against the Established Church.

Almost 80 % of the houses in the villages are privately owned, a remarkable fact in a working-class area. The area where the municipal authority erected its houses is given, in the villages, the defamatory title of 'The Estate', a term which when used in some other counties is mentioned in terms of awe and respect. To live in a 'Council House' is indicative of poverty and thralldom. The ambition of the children is to possess a house as spacious as those of the mill-owners: the aspiration of the adults to provide houses for their children as wedding gifts or, if poorer, "to leave them a house in the will".

The respect ranking of the types of houses is interesting. The greatest respect is given to the house of a poor person. The lowest rank order of all the cards is given to the house of a wealthy person. Considering that more than half the people live in houses between £3 and £10 rateable value per annum, and that only nine houses are between the rateable values of £40 and £70, these being inhabited by the mill-owners, the matter is of considerable psychological significance.

An immense regard is held for the house of a dead person. This may be further evidence of the magico-animistic feeling involved in attitudes to property which has been noticed by anthropologists working in other spheres. Throughout the investigation I have been constantly reminded of man's tendency to equip the inanimate objects of his environment with the psychic qualities which he himself possesses as a living being. It is a strong remnant of a similar and more extensive tendency among simpler peoples.

The cards placed lowest, as a group, were those dealing with company and Town Council property. This, also, is consistent with the culture of the locality. Company and Council property are looked upon as belonging to 'the others', and remote from the 'Self', a distinction the importance of which is underlined in the recent book *War Factory*, by Mass Observation (16).

If the villager thinks lightly of his employer, he will probably think lightly of his

employer's property. As the members of the Town Council are largely employers, the villagers look upon the objects which they control as a Council as belonging to the employers. The villagers have no sense of common ownership with the employers who serve on the Town Council. In fact, I have been unable to discover one single item which the majority of the villagers would call 'ours', except a Church or a club which I consider more in the nature of private ownership than common, for their activities are restricted to a small number, to some extent exclusive and more in the nature of a family group than a communal group, in such an area as this. Hence, Town Council property belongs to 'them' not to 'us', and, subconsciously, the villagers may feel that part of the employers' personality is inherent in that which is closely associated with the employers.

With shop property there is a constant tendency to place a higher value upon that of the private owner than that of the chain store. One subject explained this by stating that "We know the chap who keeps the small shop; the big store belongs to no one". The respect for property varies in direct proportion to the respect for the person possessing the property.

Farm property, including produce, equipment and livestock, has a high ranking because the villages are surrounded by farms and the villagers have an interest in the sources which maintain them and know the men who run the farms as co-villagers.

It is significant that Government war property takes a median position of 14 in the ranking. One subject said, "They do not belong to us, they are the property of the folk in London". This summarizes the general attitude.

Stealing

The attitudes towards the stealing of various kinds of property follow very closely the pattern of choice in attitudes to damaging property.

Again, house property is of first importance. First position is given to stealing from a poor person's house. This appears to be a matter of ego-identification rather than of ethics, for no person living in a house above £50 annual rateable value gave first place to this card.

Stealing from a 'blitzed' house was considered a serious offence. The village of Stubbins was partially destroyed in an enemy air raid in 1941. An attempt was made to ascertain if the villagers of Edenfield (which was not damaged in the attack) varied from those in Stubbins in their attitudes to stealing from such property. No significant difference was observed, however, which may be due to the fact that the people in both villages are highly interrelated.

An empty house was not considered to be of vital importance in this matter. It has a median position of 13. But a dead person's house (empty) was again ranked high, revealing that magico-animistic considerations can effect the vacancy of a house. No factors have been obtained, however, which will indicate for what length of period the property of a dead person retains its taboo.

Private property of a sentimental value was ranked highly. The factor of ego-identification was most prominent in this section. Some subjects explained this by saying, "It is mine, but in addition, it also reminds me of someone else. There are two of us involved." If respect for the property varies in direct proportion to the respect for the person connected with the property, it also increases with the number of person respected having a share in the property. But it is also noticed that if a number of persons share in an

article of property and one of those persons is highly disrespected, the dislike for him can outweigh the respect for all the others, thus bringing the object into disrespect. This may account for the low ranking of Church and club property, as the villager will refuse to join an organization which includes amongst its members one person whom he dislikes, despite the knowledge that in it also are a number of persons whom he does respect. This, consequently, brings into disfavour the property which the disrespected person partially controls.

The lowest places were, again, given to property belonging to a company or the Town Council. Stealing articles from the mills is a common practice in the valley. Whilst mill-owners refused to tell me the amount of annual loss this activity meant to them, most agreed that it was 'considerable'.

Almost every house in the villages possesses cushions or curtains made from local manufactures, though it is doubtful if the material was bought through legitimate market channels. The mills make the finest printed cloth in the country, and the price would be prohibitive for the mill worker. Wood, paint, and waste materials are commonly and openly stolen from the mills. Workers' houses have exhibited curtains made from materials that, at the time of their exhibition, have not been released to the trade.

The same is true of Town Council materials left overnight by the roadside. Shale, tar, tools, etc., disappear overnight, to reappear openly in the gardens and allotments of the village.

Investigation reveals that this practice of stealing from employers and Council is not due to the fact that the villager looks upon such materials as common property to which he has a share, but rather that these items belong to 'the others', the employers and wealthy who can afford to stand the loss. Materials in the mills have a median position of 18 and those of the Town Council of 19.

An interesting and important factor involved in this matter is the fact that the employers appear to believe the validity of this assumption. Workers have walked past their employer with a stolen article in full view, without comment being made. Even on the few occasions when a workman has been discovered stealing cloth of great value, there have been no prosecutions; the culprit has been quietly dismissed. The next day he may be found working at a mill a hundred yards from the scene of his former activities.

Some psychologists, noticing this factor, claim that it appears to be part of the English culture that an individual desires to avoid 'a scene'. Foreign psychologists have suggested that the Englishman is vigorous in protesting *en masse*, but as an individual avoids personal unpleasantness with great determination. This may account for the occasional police statements that no witnesses could be found at the scene of a particular accident.

Lending

The twenty cards bearing the names of personal items which could be lent were included to ascertain which articles in the average home lay closest to the Self of the individual. The war has necessitated an increase in lending among relatives and neighbours, although this same factor has perhaps placed a false value upon many articles for the duration of the war.

The two high peaks of the ranking were to be found in the sections dealing with articles of hygiene and sentimental possessions. The valleys were related to books and loose money.

The highest ranking was given to items involving the conception of personal hygiene. Of these, those which came into contact with the orifices of the body were considered to be of prime importance, such as toothbrush, pipe, handkerchief. Dress, such as underwear, overwear and hat, were considered less important, though keeping a high ranking value. One subject explained this by saying, "I don't like to wear another man's shirt but I could wash my body afterwards. But what's gone in your mouth has gone down for good." Investigation revealed the important part played in the formulation of these notions by the advertisement of certain warnings given to the public by manufacturers of toothpaste, disinfectants, soaps, etc.

Next to these came the articles under the heading 'Sentimental possessions'. This appears to be indicative of ego-identification, which is most marked in the articles received from relatives and close friends of both sexes serving with the Forces in dangerous theatres of war. Whilst a former generation appeared to value highly locketts containing photographs, the younger person ridiculed this form of remembrance, preferring, if a woman, a small cross suspended by a chain around the neck. Articles given in return to members of the Forces maintained this religious content, most often being a small pocket edition of the New Testament. This was found to be common amongst people who did not attend churches, in addition to those who were members of religious bodies. In seven cases women stated, "In the last war many men were saved from a bullet by having a Bible in their breast pockets". This is extremely significant of a religio-magic element prevalent at such a time.

The objection to lending private letters was very strong, as was that of lending private diaries. Though statistics did not show that men placed a higher value upon diaries than women, it was discovered that more men kept day-to-day introspective diaries than women; the numbers were 17 men from a sample of 100 and 3 women from a sample of 150. Very few of the villagers kept engagement diaries and these were discounted. The median positions of letters and diaries were 4 and 5 respectively. When asked why diaries were valued so highly the commonest reply was, "Because it is about ME. What I do is nobody's business." When asked about letters the reply was most often, "A letter is as good as a part of him/her".

Card 20 bore the words, Loose money. This was so phrased to avoid the subject considering large loans. Loose money is a small sum such as might be requested by a friend for the duration of a week until the next pay day. The median position of this card was 17. This is consistent with the practical attitudes of the villagers in this matter. Since the war has increased the income of workers in such an industrial area, money has now far less value than the items restricted by rationing. The villager is a generous man both to friends and strangers.

The items placed lowest were books. This had a practical significance during the Book Salvage Drive, when the villagers sent in to be destroyed a number of leather-bound, brass-cornered, illustrated family Bibles, six of which contained full family records. Hundreds of well-bound famous works found the same fate, including one complete calf-bound set of Dickens. The majority of people in the villages prefer to borrow light literature from the many lending libraries in the area at the rate of twopence per volume. This disrespect for books may be due to the fact that, until recently with the growth of evening schools, the villager had no need of book learning for his trade, since this was largely a manual occupation learned by years of working apprenticeship. The first contact

for many with the classics has been in the cinema versions. Copies of the more 'respectable' type of daily paper and magazine go only to the houses of the employers and few professional men in the area. The villager is apt to disregard the statements of 'book-readers', believing that all valid knowledge comes from 'experience'. The child is encouraged in the use of books only so far as the parent believes it will "help him to get on".

VI. CONCLUSIONS

The restricted length of this paper forbids the formulation of extensive or adequate conclusions. It is also of importance that the investigation was limited to one area in Lancashire and cannot be a picture of property attitudes for the whole country or for any other county. A similar investigation carried out in a different county might add much to the general body of conclusions. This, however, does not prevent the postulation of certain basic principles involved in the attitudes which people have towards property.

William James writes, "It is clear that between what a man calls *me* and what he simply calls *mine*, the line is difficult to draw" (15, p. 319). The fundamental relation between an object of property and the Self of the individual seems to be basically an animistic feeling. The strength of attachment to an object runs parallel with the strength of ego-involvement, which Prof. Gordon W. Allport has expressed in much of his work (13). To this factor must be added a wealth of sentiments, nurtured in the cultural group. "In making the object my own, I stamped it with the mark of my own person; whoever attacks it, attacks me; the blow struck it, strikes me, for I am present in it. Property is but the periphery of my person extended to things" (14, p. 55).

This is clearly so in the case of the person who refuses to lend a letter or a diary. The object is more than ink and paper; part of the writer is present in it. It may also be a factor involved in the desire of the villager for a large, solid house property. The extensive buildings and spacious grounds of the dream house might be the symbol of extended Self. Flugel maintains that this is so in the case of dress (15, pp. 169-70). The solidarity and comparative permanence of bricks and mortar may be the symbols of strength and permanence of Self. Though other factors are doubtless involved, it is significant that the villager who has no children to perpetuate his name and glory is the man who erects monuments and desires that his property be preserved by the National Trust, for in the study of the psychology of property an important part is played by a man's transmission of property to heirs and the fact that wives and children can be looked upon as articles of property.

The difference between the 'we' and 'they' which dominates this inquiry can be understood by a consideration of the history of the people of the area. When the mills were erected, master and workman were brothers in a common cause, often with the owner doing his full share of the manual work alongside his employees. The mill was then 'ours', not 'his'. As time passed, however, the owner became richer and more powerful, living in magnificent style as befitted a cotton king. His employee remained in the cottage. The year 1842 saw the climax of this growing antagonism when the owners called in the Dragoons to force the Stubbins rioters back to work, following a strike for better conditions. From that day it became 'we' and 'they'. To-day the tendency, sometimes amusing to witness in its cloak of exaggerated independence, is to ignore the employer completely.

Graphs showing the curves for the differences of sex, age, rateable values and occupa-

tion, reveal that the entire population sampled are clearly commonly agreed in their placement of the various items listed. This reveals a complete pattern of choice for the two villages. Meagre results from other counties show differences of attitudes that suggest local patterns of choice. These differences appear to be the result of varying patterns of culture within the one country. No doubt greater differences would be revealed with tests done in countries such as Russia and America, with perhaps subdifferences within those national cultures.

If this be so, then the acquisition of property is a habit complex by which we select objects that satisfy our fundamental needs. The factor determining which objects we select for possession and which are rejected depend upon the culture pattern, modified by individual differences, in which we have been reared. Being, therefore, children of the culture, attitudes towards property will change with the culture.

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CRITICAL NOTICE

By M. D. VERNON

Man, Morals and Society: A Psycho-analytical Study. By J. C. FLUGEL. London: Duckworth. 1945. Pp. 328. 21s. net.

Prof. Flugel is to be congratulated upon the opportune appearance of this exceedingly interesting study of the important psycho-analytical concept of the super-ego and its relationship to morality and religion. We have become familiar with the difficulties and conflicts created by the repression of the id forces and the revolt of the id against repression. But the later work of the psycho-analysts which deals with the aggressive and punitive activities of the super-ego is less familiar. It is unfortunately true as Prof. Flugel demonstrates that the latter does not become completely ethical and reasonable as the child emerges from the Oedipus phase. Although its activity is modified to some extent by its interaction with the conscious ego-ideal, it still retains much of the 'magical', autistic and aggressive characteristics of its origin in the unconscious mind.

Prof. Flugel gives a long and interesting discussion of the manner in which the natural aggression of the child, when frustrated by parental restrictions, is liable to turn inwards upon the self as 'nemesism', and to reinforce the parental prohibitions by the dictates of the super-ego. When these parental restrictions pass over into the moral restrictions and taboos of society, the super-ego enforces them as the 'voice of conscience', and creates the guilty feelings which occur when these restrictions are infringed. But because the super-ego retains the characteristics of the unconscious mind, its dictates are exceedingly fierce, punitive and irrational. They are in turn projected back on to society to form a basis for the aggressiveness and unreasonableness of much traditional morality and of many religious beliefs and customs. As mentioned above, the negative nature of the dictates of the super-ego may be to a greater or less degree supplemented and superseded by the more positive and 'loving' standards of the ego-ideal. But how far and in what manner this can take place—whether indeed super-ego and ego-ideal can become fully integrated—does not appear very clearly from the discussion—except that Prof. Flugel considers that the influence of the ego-ideal will be more effective in so far as it provides a series of gradually ascending 'levels of aspiration' rather than an unattainably idealistic standard of achievement, failure to reach which will merely increase the feelings of frustration and guilt.

It is impossible in a review to discuss in full all the detailed evidence adduced by Prof. Flugel to demonstrate the effect of the aggressive nature of the super-ego on morality. But it is exceedingly important that we should realize how much of our moral condemnation is determined by, and owes its fervour to, its origin in the unconscious mind. The psycho-analytic study of neurotic individuals has given plenty of evidence as to these primitive characteristics of the super-ego. But in the nature of things psycho-analysis has given much less, and less clear, evidence of the manner in which both individual and social morality can emerge from this aggressive stage. There seems little doubt that an absence of unreasonable, arbitrary and irresponsible frustration in childhood, and the substitution of encouragement and approval by parents and teachers for prohibition and disapproval, will reinforce the positive 'love' tendencies of the super-ego and minimize its punitive tendencies. But the bed-rock of the problem, from both the individual and the social point of view, remains—what is to be done with our unconsciously based aggressiveness, since some frustration there must always be? Is it fundamentally pugnacious in character, or in the absence of unnecessary frustration might it appear as a natural and desirable forcefulness and initiative? Is it possible to sublimate aggressiveness in the not very highly gifted individual into channels which are satisfactory to him and valuable to society? Or will it retain so much of its pugnacity and rebelliousness as to stimulate opposition and arouse reaction (as the example of even some of our most gifted social reformers seems to indicate)? Prof. Flugel rather disappointingly avoids discussing sublimation in this book—a process familiar enough in name, yet the underlying nature of which seems little understood.

Moreover, his treatment of religion, and in particular of Christianity, does not really decide the issue. It is of course true that the latter has been saddled with very many accretions both of 'magical' beliefs and rituals and also of moral conventions dictated by the super-ego. Nevertheless the fundamental claims of Christianity, and of many of the other great religions, remain. One of these is, quite clearly, that there exist in the mind spiritual forces which cannot be identified with those of the super-ego; and

which differ at least as greatly from those of the super-ego as does the conscious ego from the id. Moreover, denial of these spiritual forces results in reactions to 'daemonisms'—Nazism, ultra-nationalism, love of power and so on. These claims may be accepted or rejected; but the religions cease to exist as such if they are reduced to functions of the super-ego; or if the attempt is made to water them down to ethical and humanitarian systems, fabricated by the conscious ego, such as the Religion of Humanity first propounded by Cattell and discussed with approval in this book. Prof. Flugel has made a very valuable contribution to the study of morality and of social attitudes, but there remains more to religion than these.

PUBLICATIONS RECENTLY RECEIVED

Man and his Works. By EDWARD LEE THORNDIKE. Cambridge, Mass.: The Harvard University Press (London: Humphrey Milford). 1943. Pp. 212. \$2.50. 14s.

The publishers rightly describe *Man and his Works*, which is based on the William James Lectures given by Prof. Thorndike at Harvard in the winter of 1942, as "the latest and simplest statement by this famous educational psychologist of his views on the basic facts of psychology and their applications in certain fields". The work covers an immense scope in a very small space.

The first chapter deals with man's original or inherited nature—conceived as a collection of 'genes' determining not only simple responses like reflexes, but equally, at a higher level, such things as the satisfaction derived from unthwarted mental activity. The old, simple theory of random movements is rejected in favour of that of a multitude of genes. A short chapter on learning stresses the effect of reward and the spread of this effect to other connexions contiguous in time to that immediately rewarded. Punishment, treated in more detail in a later chapter, is, as might be expected from Thorndike, regarded with little favour in its application to individuals, and with still less in its application to nations. The remaining chapters deal with a variety of problems in social psychology such as the relationship between employer and employed, and functions of government and of law, and the origin and use of language. On all of these topics Thorndike has something new and provocative to say, and of particular value are his attempts to get something like an objective index of the welfare of an individual in a community and of a community as a whole.

The book is certainly one of the most stimulating which Thorndike has ever written. It can be read with enjoyment and interest—if not always with full agreement—by every student of the social sciences as well as by the professional psychologist.

G. C. G.

Emotional Factors in Learning. By LOIS BARCLAY MURPHY and HENRY LADD. New York: Columbia University Press (London: Humphrey Milford). 1944. Pp. x+404. 23s. 6d.

The work upon which this book is based was carried out at Sarah Lawrence College. The point of view adopted is mainly descriptive, clinical (but not at all in the medical sense) and individualistic. Students are thought of as requiring a scheme of education and responding to it in accord with their active attitudes towards the world of things and people; towards environmental material regarded either as straightforwardly factual or as exercising some kind of constraining authority; and towards problems of diverse kinds. All these attitudes have a strong 'interest' and 'emotional' character. The first part of the book expounds these views in a more or less general way, though with many illustrations. The second part illustrates them in a series of ten individual studies.

Methodology of the Social Sciences. By FELIX KAUFMANN. New York: Oxford University Press (London: Humphrey Milford). Pp. ix+272. 20s.

This scholarly book is much occupied with the question of whether the social sciences should or should not adopt the methods of the natural sciences. The discussion proceeds on an abstract level, the main topic of its first part being a distinction between deductive logic and the logic of empirical science. The latter is conceived as primarily concerned with the methodology of warranted decisions based upon evidence obtained in scientifically controlled situations. The second part concerns the application of this principle in the social sciences. It is maintained that the differences between physical laws and those having to do with social relations and determinants are less than have often been supposed. The volume has its chief appeal to the philosophically minded reader.

A Dictionary of International Slurs. By A. A. ROBACK. Cambridge, Mass.: Sci. Art Publishers. 1944. Pp. 394. \$6.25.

Dr A. A. Roback combines industry and ingenuity to a remarkable degree. He writes more than most people, and perhaps publishes without much revision. Yet his books and articles are so much alive, have so many bright and sometimes brilliant ideas, and are stimulating to such a degree that they deserve a wide welcome even from the overworked modern student of psychology. The *Dictionary of International Slurs* is no exception to this. Anybody with some knowledge of social history and of the interplay of the greater world groups can delve into this collection of, mainly derogatory, words and phrases which pass current in one group about the character and behaviour of members of other groups and if he does he will find many attractive lines of thought and topics for research opening up before him. The collection is not complete, and does not pretend to be; that does not matter. It shows how different groups sling the same back-handed compliments at one another, but how they get a different twist in different groups. It shows how the same basic themes recur again and again in the popular comments about foreigners from all the big groups. It shows how easily popular attitudes can sustain blank contradictions. It suggests, but does not prove, that in spite of all overlap certain aspects of social relationships may be so emphasized in particular groups as to become characteristic of them.

Following the list of 'slurs' there is an essay on Aspects of Ethnic Prejudice. Although this is lively and interesting it is somewhat scrappy and raises rather too many problems for its scope. It is also often over-dogmatic in tone and expression, and a little apt to confuse a psychological study of the actual functions of popular 'slurs', with an ethical attitude that they are undesirable and should be removed by a process of 'enlightenment'.

But if this book is handed to the intelligent student of social psychology and he is encouraged to make its study the starting point of some bit of concrete research it could lead him into many fields that may be of vast importance for the immediate future of mankind.

Climate Makes the Man. By CLARENCE A. MILLS. London: Victor Gollancz Ltd. 1945. Pp. 186. 7s. 6d. net.

Psychologists should give attention to this book, less, perhaps for what it contains, though this is both interesting and important, than for what it leaves out. The author is a Professor of Experimental Medicine at the University of Cincinnati and he has travelled widely and well so that he has first hand acquaintance with many different climatic conditions. He has also carried out many animal experiments and investigations in rooms with controlled high, moderate and low temperature. In a clear, pleasant, but rather verbose manner, he here records the results of his research. He shows, often in an anecdotal way, how climatic conditions may affect metabolic change, the spread of infection, the incidence of particular diseases, and the course and character of large social movements. He is much alive to the way in which nutritional agencies facilitate or counteract tendencies which he considers to be directly aided or restrained by climate, but here, as in many other parts of the book the incautious or incompletely informed reader is likely to get a slightly exaggerated idea of the definiteness and certainty of present knowledge. Where the psychologist will be left unsatisfied is in the small amount that can be said with any assurance about the mental components of behaviour that are affected even in extreme climatic variations. Most of what Professor Mills can say is a result of inference rather than of direct experiment or of adequately controlled observation. And this is not, of course, the author's fault. Methods for anything like a vigorous study of the psychological effects of climate have not yet been well developed. It is greatly to be hoped that psychological students, especially those equipped with a good medical training, will read this book; then seek the more detailed knowledge which fully documented studies alone can give; and then try to build and exploit those controlled methods which are needed to show just how, and how much, psychological functions are directly influenced by the facts of climate to which Professor Mills, no doubt rightly, ascribes overwhelming importance.

Large Scale Rorschach Techniques. By M. R. HARROWER-ERICKSON and M. E. STEINER. Springfield, Illinois: Charles C. Thomas (London: Baillière, Tindall & Cox). 1945. Pp. xi + 419. \$8.50.

This book is intended mainly for those who already have a good knowledge of the Rorschach technique, though it will also be of considerable interest to psychologists in general. It describes two modifications of this technique which have been found useful in large scale testing. Parts I and II deal with group Rorschach testing. The ink-blot tests are presented for 3 min. each by lantern or epidiascope to groups who

write down their responses on specially prepared test blanks; and subsequently locate these by numbering them on small diagrams of the blots. (In a more recent modification, each subject has a separate booklet of the original ink-blots.) This procedure of course greatly shortens the time taken in administering the test; but expert evaluation of the responses is still necessary for diagnosis. The distribution of responses was found to be very similar to that obtained with individual testing.

Part III of the book describes a rapid means of selection of maladjusted cases by means of a Multiple Choice test based on the Rorschach. Here each individual is required to choose the one of ten suggested responses (in a later form, three of thirty) which he thinks most appropriate to each ink-blot. Half of the suggested responses are selected from those given frequently by normal individuals; and half are characteristic of abnormal cases. It was found that groups of normals tended to give less than 40 % 'bad' answers, while maladjusted individuals tended to give more. But there was a considerable overlap. Thus in using the test for selection purposes, e.g. for the Services, if the pass mark was set as low as 40 %, many normal individuals were failed; whereas if it was set as high as 50 or 60 %, many maladjusted cases passed. It seemed best to regard the 40-60 % range as border-line cases who needed additional psychiatric examination. But a very interesting section by F. O. Due, M. E. Wright and B. A. Wright shows why a simple pass or fail score often gives inaccurate results. The particular responses of various maladjusted types, e.g. of different neurotic types, vary greatly; and it is the pattern of particular 'good' and 'bad' responses which is most likely to be really diagnostic. Although it requires the highly skilled Rorschach technician to work out these patterns, it seems possible that a trained psychologist might learn to use them in selection testing with less labour than is required to learn the whole Rorschach technique. The simple 'pass or fail' form of the Multiple Choice test can of course be given and scored by psychologically untrained personnel. It has the additional advantage over the older Rorschach techniques that it is less dependent on the verbal facility of the subject; but a possible disadvantage in that the choice of responses might be found unduly constricting by a highly imaginative subject. Moreover, the validity of both group techniques depends to a high degree on the subjects' co-operativeness. For one of the principal signs of emotional disorder is said to be the failure to respond (or the response "Nothing at all"). English subjects, often less amenable to testing than are Americans, might frequently fail to respond for reasons other than emotional disorder, e.g. because they "couldn't be bothered". However, it would of course be necessary to try out these new techniques on large representative groups of English subjects before deciding the best manner of using them in this country. They might be found exceedingly valuable if they could be used with a reasonable degree of accuracy by psychologists who had not the time for long periods of specialized training.

Rorschach's Test. Vol. I. Basic Processes. By SAMUEL J. BECK. New York: Grune and Stratton, Inc. 1944. Pp. xi+223. \$3.50.

This is a manual of instructions for giving the Rorschach test and of exact methods of scoring. Each type of response, e.g. Whole, Detail, etc., is described in great detail with many examples. This book would be of great use to anyone well acquainted with the Rorschach method, but useless to the beginner. No interpretations are given.

From Gods to Dictators. By PRYNS HOPKINS. Girard, Kansas: Haldeman-Julius Publications (Distributed by Freedom, 1375 S. Oak Knoll Avenue, Pasadena 5, California). 1944. Pp. 168. Paper, \$1.00; cloth, \$1.65.

In this book Dr Pryns Hopkins makes a psychological study of the main characteristics of the religions of the world and of the modern cults of communism, fascism and nazism, comparing them with psycho-analysis as regards their efficacy in leading to the "greatest happiness of the greatest number". For this he thinks *ought* to be the principal aim of mankind, though in fact it is fairly clear that it seldom is. Judged by this criterion, he finds that the greater religions are partially successful, and so also is communism (though he is perhaps reluctant yet to commit himself on this). Fascism and nazism are quite unsuccessful. Psycho-analysis is said to be the most effective in causing happiness, but can of course be applied only to a small number of people.

Although Dr Pryns Hopkins's analysis of the various religions, their customs and beliefs, is fair and impartial, he does not stress sufficiently what has been held by all the great religions, that other aims are to be considered of far greater importance than the attainment of happiness whether for oneself or for others. (And, to do them justice, so also have fascism and nazism!) Thus although the religions have brought joy to many, they have undoubtedly brought sorrow also. Their avowed aims cannot be justly

dismissed as, at best, illusory and, at worst, sado-masochistic. The psychologist, as soon as he ceases merely to observe and analyse, and begins to consider values impartially, must find that religions, like works of art, must be evaluated in their own terms; few people would attribute the highest value to the work of art which appeared to give the greatest happiness to the greatest number. And indeed on the criterion of "the greatest happiness for the greatest number", psycho-analysis for the few and communism for the many (resulting perhaps in the ant-like civilization so vividly described by Ouspensky) are as likely to satisfy as any.

Nevertheless, Dr Pryns Hopkins's book is interesting for its observation and analysis; and it is a pity that it has been so badly printed and that many of the illustrations are almost obscured.

Invisible Anatomy. By E. GRAHAM HOWE. London: Faber & Faber, Ltd. 1944. Pp. 333. 10s. 6d. net.

It is clear that one of the chief difficulties in the study and understanding of psychological disorders is the difficulty of finding a suitable terminology and set of concepts to describe the essential processes and the basic phenomena of these disorders. The psychiatrist classifies them mainly in terms of their overt syndromes; the psycho-analyst, according to the dramatized stages of infantile development at which, hypothetically, they originated. These methods are liable to introduce a superficiality and stereotyped rigidity into the diagnosis of any particular disorder. The author of this book seeks to demonstrate the importance in understanding the individual case of considering the actual psychological processes originating in the unconscious mind and expressing themselves through an 'invisible anatomy'—that is to say, in terms of bodily processes and sensations. Such terms may be partly symbolic, as in familiar expressions such as, "My heart leapt into my mouth", "It gives me a pain in the neck", "My nerves are all on edge", etc. But also the desires and phantasied actions of the unconscious mind may actually express themselves in bodily processes, the extreme example being the 'organ jargon' of the hysteric. The interpretation of this 'body language' may therefore provide valuable clues to the origin and development of the psychological disorder. The author shows how what are commonly called 'nerves' may develop into hysteria when the individual tries to reject fear, separation and loss by refusing to accept his actual weaning, or subsequent 'psychological weanings', and 'identifies' himself with his unconscious 'lower' or 'body self' which then expresses itself in the 'organ jargon'. To trace this process of mal-development—and by contrast to show how healthy development can take place—he makes use of the difficult concepts of the 'invisible anatomy' of the nervous system which are found in the Eastern religions. The time has not yet come for the Western psychologist to reconcile these concepts at all readily with his knowledge of 'material' physiology, although it is clear that they have always existed in common thought as demonstrated in expressions such as those quoted above. There is little doubt, however, that these concepts suggest a valuable method of approach to the otherwise 'inexpressible' phenomena of the unconscious mind. The author is to be congratulated on the introduction to the use of these concepts which he has given in this and previous books. It is the more valuable in that it not only points a way to the cure of actual psychological disorder, but also suggests methods of meeting many of the conflicts and difficulties encountered by the more or less 'normal' individual living in modern civilized society. The reader may at first find Dr Graham Howe's manner of expressing his ideas somewhat incomprehensible and his diagrams more confusing than helpful; but his book is nevertheless well worth perseverance.

Maternal Over-protection. By DAVID M. LEVY. New York: Columbia University Press. 1943. Pp. ix+417. \$4.50; 18s. net.

This is a careful study primarily of twenty cases of 'pure' maternal over-protection which were referred to the Institute of Child Guidance in New York City—a 'pure' case being one in which there was considerable over-protection uncomplicated either by a mixture of rejection during infancy or by final rejection in later life. Each case—almost every facet of each child's development, intelligence, interests, personality, etc.—is discussed in detail and the information thus gathered, together with the account of the environmental factors resulting in over-protection, will well repay close study by all who are interested in child welfare.

As to the outcome of attendance at the clinic, it appears that the children themselves received no benefit from direct psychotherapy, apparently because they did not wish to escape from their protected environment; while the mothers refused the treatment of which they were so greatly in need, though they were sometimes persuaded to modify slightly their relationships with their children. In some cases the fathers were prevailed upon to take a more adequate part in the family life, with beneficial results. The most effective method of treatment was 'environmental', sending the children to camps or boarding schools and encouraging outside social contacts both for the children and for their mothers. It is of in-

terest to note that a 'follow-up', nine to twelve years after reference to the clinic, showed an average higher adjustment for these cases than for the clinic cases as a whole.

More studies of this kind are required. Unfortunately the staffs of most clinics are overburdened with patients and have little time to spare in time to examine their data. Taking a larger view, however, there can be no doubt that time thus spent would be well worth while.

What is Hypnosis? Studies in Conditioning. By ANDREW SALTER. New York: Richard R. Smith. 1944. Pp. 88. \$2 net.

This is an account, in a semi-popular style, of the author's views on hypnosis and of the results of his experiments. He claims that hypnosis "is the production of reactions in the human organism through the use of verbal or other associative reflexes" (p. 9); that the phenomena of hypnosis are merely the results of conditioning; that "the 'trance' is but a pattern of specific conditionings" (p. 17); that there is no necessity for the concept of *rapport*, because of the fact of auto-hypnosis; that prestige is not necessary, and so on. The arguments adduced are often extremely naive and seldom, if ever, convincing, while the experimental evidence quoted might be used to prove that hypnosis is *not* merely conditioning. The techniques of auto-hypnosis, which are given in an Appendix, have already been published in the *Journal of General Psychology*, 1941.

The descriptive accounts of some of the results of his experiments with subjects who produced various anaesthesias and other phenomena in the waking state, are interesting; for instance, one man won a bet by allowing himself to be burnt on the hand with a lighted cigarette. But as a serious contribution to the study of hypnosis the value of the publication is slight. H. B.

A Handbook of Psychiatry. By P. M. LICHTENSTEIN and S. M. SMALL. London: Kegan Paul. 1944. Pp. 330. 16s. net.

In a rather superficial manner the authors outline much of the field of psychiatry, from testing intelligence and assessing personality to shock therapy and leucotomy. The book will not be of much interest to the professional psychiatrist, but it can be recommended to the notice of those who wish to know something about the subject in a more-or-less amateurish manner.

A bibliography is given at the end of each chapter, and there is a useful index.

A Text-Book of Psychiatry. By D. K. HENDERSON and R. D. GILLESPIE. Sixth edition. Oxford University Press. 1944. Pp. xii + 719. 25s.

This book is now so well known and has so fully established a reputation that there is little need to do more than record with pleasure the appearance of a sixth edition, and to congratulate the distinguished authors and the publisher. Considerable alterations and improvements have been made, of which probably the most interesting to the experimental psychologist is the extremely able and lucid chapter on the various forms of physical treatment by chemical, electrical and operational methods. A change which seems important and well-advised is the separation of the study of paranoia and paranoid conditions from that of the "shut-in, introvert make-up of the schizophrenic". In various places the social and preventive aspects of psychiatry are emphasized even more than they were in earlier editions.

Rebel without a Cause: the Hypnoanalysis of a Criminal Psychopath. By R. M. LINDNER. New York: Greene and Stratton. 1944. Pp. xi + 296. \$4.00.

"This book is not intended for the layman. The psychiatrist and psychologist of any school of thought or therapy, the alert judge of a juvenile or adult criminal court, the thoughtful clergyman, the criminologist of inquiring mind, the penologist who conceives his job in higher terms than as keeper of a zoo for human derelicts, and the educator of vision should find this work instructive and provocative. It is especially to be prescribed as sobering medicine for both the physical anthropologist and the sociologist concerned with criminals." This quotation is taken from the preface by Sheldon and Eleanor Glueck. Actually the book is a tremendously long-drawn-out and detailed history of Harold, a Polish-American who got himself into a variety of criminal scrapes. The method, claimed to have both research and therapeutic value, is a combination of hypnosis and psycho-analysis, and the confessions and comments of Harold during forty-six hours of treatment are recorded nearly word for word for each hour in turn. In fact nothing very new comes out of it all, but the reader who has perseveringly pursued Harold through all his repetitive ways and finally left him in "a deep hypnotic sleep", may be cheered to know that "the patient was 'cured' in the sense of alteration of style of life".

The War and Mental Health in England. By JAMES M. MACKINTOSH. New York: the Commonwealth Fund (London: Humphrey Milford). 1945. Pp. 91. 5s. 6d. net.

This beautifully printed and produced book contains, first, a brief account of the various mental stresses and strains undergone by the people of this country during the war, and how they have met them; and, secondly, an outline description of the mental health services of this country, how they originated, and how they are functioning to-day. The first part is cleverly written and based on shrewd though rather superficial observation. The whole might have formed a useful pamphlet in support of the voluntary mental health organizations and of the training of more psychiatric social workers. But it is too slight to constitute a book of any great importance.

New Goals for Old Age. Edited by GEORGE LAWTON. Columbia University Press (London: Humphrey Milford). 1944. Pp. ix + 210. 22s. net.

There is much that is interesting in this extremely expensive book. It contains fifteen rather short essays on various aspects of old age, and a prologue which relates why it was undertaken. While much of the material is anecdotal, there are some useful facts and statistics clearly set forth, and there is one bit of cheerful autobiography: How it feels to be Seventy-Five and a Woman. An extensive bibliography is added.

William James: His Marginalia, Personality and Contribution. By A. A. ROBACK. Cambridge, Mass.: Sci. Art Publishers. 1942. Pp. 336. \$3.50.

The centenary of the birth of William James afforded a more or less legitimate opportunity for the publication of a number of new books dealing with himself and his work. Among these Dr Roback's study must be held to occupy an honourable place. It deals with the man, his character, his interests—especially his side interests—and his influence, both immediate and abiding. The three parts discuss *Books and Marginalia*, *Revisions and Interpretations*, and *An Estimate of the Man and his Work*. Each has its own special interest. The first contains many points of information about James's habits, style and general literary bias which will be new to most English readers even if they have perused R. B. Perry's "practically exhaustive biography". The second, in some ways the most original, makes an attempt to decide what James would have thought about some of the outstanding psychological and political issues of to-day. The third, both provocative and acute, presents Roback's estimate of the man and his work. Taking a number of traits of physical make-up, intelligence, affective life, self-expressive tendencies and behaviour qualities, the author produces a most attractive psychograph, or, as he calls it, "personalysis", of his subject. It is a picture that anybody might legitimately envy, and pretty good evidence for the ratings of the characteristics included is given in the text. But the book is by no means mere adulation. Within the limits set, a genuine and honest attempt is made to present the man as he was, and this ought to help many a student to appreciate more fully and with greater judgement the force and value, and the occasional weakness, of the original work of this very great psychologist.

The Psychiatric Novels of Oliver Wendell Holmes. By CLARENCE P. OBERNDORF. New York: Columbia University Press (London: Humphrey Milford). 1943. Pp. viii + 268. 20s. net.

It is somewhat difficult to see what is the real justification for a book of this kind. The three novels of Oliver Wendell Holmes—*Elsie Venner*, *The Guardian Angel* and *A Mortal Antipathy*—are condensed into their more or less purple passages, so that they take up an eighth or a tenth of their original space. Footnotes and comments giving case material and general interpretations of a psychoanalytical nature are added, and the apparent purpose is to show that O. W. Holmes was a precursor of Freud. The whole is exceedingly competent, but it does not achieve anything remarkably new either in the field of literary criticism or in that of psychoanalysis.

A Contribution to the Theory of the Living Organism. By W. E. AGAR. Melbourne University Press (Oxford University Press). 1943. Pp. 207. 12s. 6d. net.

This book presents a detailed exposition, on the basis of the theory of A. N. Whitehead's *Philosophy of Organism*, of the evolution and behaviour of living organisms regarded as unitary wholes transcending the separate parts from which they are organized. "The main thesis... is that all living organisms are

subjects;... that the characteristic activity of a subject is the act of perception; and that perception is the establishment by the subject of its causal relationship with the external world." After analysing purposive action, the functions of biological 'fields', perception and consciousness, the author discusses animal behaviour, embryonic development, and theories of evolution.

The Psychiatry of Robert Burton. By BERGEN EVANS in consultation with GEORGE J. MOHR. New York: Columbia University Press (London: Humphrey Milford). Pp. ix + 129. 13s. 6d.

There are perhaps few books by an English writer which more people have tried and failed to read than *The Anatomy of Melancholy*. Its disorderly range of erudition, its apparently irrelevant digressions, its mixture of insight and credulity, its abundant latinization and its crowd of now obsolete expressions make its reading a formidable task. Yet it is a book by no means to be neglected by the student of human nature. This account of its author, his personal history and character, his views and methods of exposition and of the similarities of his opinions to many of the conclusions of contemporary psychiatry, is in all respects to be recommended. It is concise and vigorous, admirably illustrated by well-chosen quotations, sympathetic and critical, and beautifully written. It deals in turn with The Man, The Book, Symptomatology, Etiology and Therapy. The results of the whole discussion are stated in a brief but fully adequate Conclusion. There is a very good annotated Bibliography and the Index is excellent. Altogether it is an exceedingly good and attractive volume. If Democritus Junior could only read it himself, he would probably be much gratified, although in what mazes of ancient learning he would disguise his pleasure it is less easy to say.

Lewis's Medical, Scientific and Technical Library. London: H. K. Lewis and Co., Ltd. 1944. Pp. viii + 922. To subscribers, 12s. 6d.; to non-subscribers, 25s.

The revision and reissue of Lewis's Catalogue covers the period up to the end of 1943. Part I gives authors and titles in alphabetical order of authors' names. In Part II, Subjects are classified and Author references given. The indexes are excellent. A large number of subscribers, who, whether with or without medical qualifications, are interested in psychology, will welcome this catalogue, while many students who may not be subscribers will find it a valuable aid to the building up of specific bibliographies.